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THE TEACHERS' PROVIDENT FUND.

We have frequently noticed and reproduced the papers read at the recent meetings of the Madras Teachers' Guild. The majority of the papers read are purely professional, and relate to the best methods of teaching some particular subjects, as Dictation, Reading, Writing, &c. But Rao Bahadur M.R.Ry. V. Krishnamachariar, at the request of the Secretaries of the Guild, departed somewhat from the beaten track, and read a carefully thought-out paper on a subject calculated to benefit the teachers rather than their pupils. He advocated the formation of a Provident Fund in connection with the Guild, and gave cogent reasons for the necessity of such a fund. When we consider that teachers have had a definite status and have been improving in numbers and in attainments since 1854, the wonder is that such a fund has not come into existence before; but there are many causes which might explain the delay. One is the undivided family system common among Hindus. So long as this system was general, there was no necessity for a Provident Fund,

for the sick schoolmaster, or in case of death, his widow and orphans would be taken care of by those of the family who were flourishing. In recent years, however, this system has gradually been dying out especially among the wealthy, and the educated, and the custom of dividing the property on the marriage of the children is becoming general. Hence, under these conditions, the schoolmaster, who has spent most of his share of the family property in getting his degree, will find himself and his family entirely dependent on his new profession, and if he desires to prepare himself for a day of trouble arising from loss of employment or sickness, he will to a great measure mitigate his trial by the help of the Provident Fund. Again, until 10 or 15 years ago, nearly all the schoolmasters in the country were in Government employment which ensured regularity of pay, and a pension for their old age. When these Government schools were handed over to Municipalities and Local Fund Boards, the schoolmaster ceased to be a Government servant, and under his new masters, his prospect of a pension disappeared. Hence to the younger generation of schoolmasters, the Provident Fund will be a necessity if they wish to provide for old age. Until the formation of the Teachers' Guild, there was no central authority likely or capable of binding together in a common interest schoolmasters scattered all over the Presidency. Even now we are not quite sure that the Guild will be sufficiently powerful to influence teachers in the mofussil to such an extent that they will readily join the Provident Fund. Of the necessity and utility of such a fund there can be no doubt, and it would be waste of time to impress on our readers this fact. Yet, undoubtedly, the subject ought to be threshed out thoroughly before any practical measures are taken. The Guild has appointed a committee for this purpose, and we may be sure that they will do their work well. Unfortunately, in Madras in recent years we have seen several similar societies started only to live a vigorous life for a year or two, then altogether sicken and die. For a Society to manage a Provident Fund, there must be the element of absolute certainty as to its existence. Infinite trouble and pain would be caused if after a time and for causes such as the going on furlough of the present energetic Secretaries or the indifference of the members of the Guild, the Fund ceased to flourish or even to exist; a very great difficulty as to the money that had accumulated would arise, a

difficulty we should be very careful of being prepared to face when the society is flourishing, so that the subscribers would not suffer. Mr. Kellett, one of the Secretaries of the Guild, spoke on the general merits of the proposal. His words were cautious rather than enthusiastic, hence the impression that he is not in favour of the formation of the Fund. This is a wrong idea altogether. As a man who has had a large and varied experience of men and societies, he saw, at once, the difficulties that would have to be guarded against, and fully realising these difficulties, he expressed a need for caution. If the committee appointed by the Guild think that the fund can be started and is likely to be successful, we shall render it all the support we can, and pray that it may have a long and useful existence.

The only chance of its being a success is that the Fund will become popular among those it is intended to benefit, and the surest means of giving stability to the Teachers' Guild is to ensure a large number of schoolmasters taking advantage of the Provident Fund.

PUBLIC INSTRUCTION IN BURMA.

The Report on Public Instruction in Burma for the year 1894-95 furnishes very interesting reading, and discloses the progress of education in a part of the Indian empire generally considered backward. Mr. Pope's report is, therefore, all the more welcome as it will go far towards removing such an impression. The most prominent among the year's operations were a more thorough system of inspection and award of grants, special attention to Normal Schools and the training of teachers, the introduction of itinerant teachers—a plan corresponding to the Sessional Schools of the Madras Presidency—and lastly, at some selected centres, educational conferences which revised the Grant-in-Aid Rules and brought out the new Education Code. It is hardly necessary to point out the importance of periodical inspection by the Department of primary and secondary schools, which are in constant danger of stagnating and even deteriorating, unless closely watched and spurred on to better work. The Department is also doing

immense good to the country by the increased attention it pays to the training of teachers and consequently to the spread of education.

The total number of schools in both Upper and Lower Burma rose during the year from 14,823 to 15,084, and the number of pupils from 237,550 to 244,734, or, in other words, schools increased in number by 2, and scholars by slightly over 3 per cent. The report does not give figures for preceding years to enable us to judge how far this growth compares with that of former years. It will be well if, in future years, the figures for the preceding quinquennium be also given. But the advance in schools referred to above occurred under 'Private Schools.' Public schools declined in number by about 6 per cent, and this fall is accounted for by the scarcity in the Province which prevented parents from sending their children to schools and by the greater strictness adopted in the classification of schools.

Till lately, there was only one college for the whole Province, the Rangoon College, which like the Madras Presidency College before the establishment of the Law College, was and still continues to be, a First Grade College with a Law Department attached to it. Though by the establishment of the Baptist Mission College, the number has been doubled, yet there is a fall in the number of students receiving collegiate education, *viz.*, from 80 to 72. But as regards High School Education, there has been a distinct advance both in the number of schools and of scholars, the former having risen from 11 to 13 and the latter from 4,043 to 4,413. There was also a decided increase in the number of candidates that succeeded in passing the Entrance Examination of the Calcutta University. These results are very encouraging and bear ample testimony to the fact that educationally the province is progressing and that the people are beginning to appreciate the benefits of a good western education. Primary Education, however, does not appear to have progressed, judging from the large number of schools that have been removed from the Public Schools List. A marked decline is also noticeable in the number of passes at the Primary Examination, the fall being ascribed to the fact that the examination was transferred from the hands of Superintendents and Headmasters of Schools to the Inspecting Officers. Another cause of this decline in public schools is to be found in the unfavourable attitude of the Buddhist monks who, while opposing

secular education, do not hesitate to avail themselves more largely year after year of the benefits of the system of Results Grants. This hostility can be overcome, or, at any rate, toned down by Inspectors meeting them in their tours and convincing them of the harm they do to the cause of education by their opposition.

Burma seems to be no exception to the generality of Indian provinces where "the goal of every pupil's ambition" is a clerkship in some public office. Hence, technical education is reported not to be thriving in the land. The Chief Commissioner is, however, doing his best by the opening of an Engineering School and of a Technical class attached to the Railway Workshop at Insein. Nevertheless, much remains to be done in the way of Commercial and Art Instruction. The education of girls is spreading much more rapidly in Burma than that of the other sex. 26,911 pupils are reported to be under instruction as against 25,352 in 1893-94, and one girl is mentioned as having passed the F.A. Examination during the year. These are very creditable results, and if the want of efficient teachers which girls' schools, especially the Karen Schools, suffer from, be met by the establishment of training schools for mistresses, then the educational system of the Province, in so far at least as girls are concerned, may be said to rest on a very firm basis.

Financially judged too, Education in the Province is on the forward move. Government expended Rs. 57,000 more than during the year previous, but owing to a reduction of Municipal and Local Funds, the total expenditure in Burma rose by only Rs. 30,000. Since the greater portion of this amount was due to increased grants to primary and secondary schools for boys and to girls' schools, the amount may be considered as having been well spent.

Physical Education does not command that amount of attention which its importance deserves judging from the total absence of inter-school sports during the year. The Inspectors are to a great extent responsible for this state of things. If, during their tours, they make it a part of their duty to confer with Managers and organise sports and games, then there will be no room for such a reproach to Burma.

Before concluding this *resumè*, we wish to suggest that big Statistical Tables which occur in the body of the Director's Report may with advantage be relegated to the Appendices, and that brief

reviews of Secondary and Primary schools individually may be left out of the Director's Report and be included in the Director's Reviews of Inspectors' annual reports. Then the Director's Report will gain in brevity and will furnish continuous matter for reading.

With regard to the total number of schools, Burma occupies the third place in the list of Indian provinces, (Bengal and Madras being ahead) while in point of numbers of pupils under instruction, it takes the sixth place being in advance only of the Central Provinces and Assam.

Mr. Pope has justly earned the thanks of the Chief Commissioner for his full and interesting report on the working of the Department which he so well controlled throughout the year.

THE UNIVERSITY AND ITS INFLUENCE.

(*Continued.*)

The blessings such a University confers on its *alumni* are manifold. The student imbued with the best form of culture is made acquainted with the best that has been thought and written by the best minds on the best subjects, and so is enabled to play the best part on the great theatre of life. By living in the midst of learned men zealous for their own particular sciences, yet respecting, consulting and aiding each other and so ever breathing a wholesome atmosphere of thought and entering into " competition without envy and controversy without a drop of gall," he apprehends the great outlines of knowledge, the principles underlying it, the relative position and value of its parts, in short, receives what is termed " Liberal Education." He also forms what Dr. Newman calls a ' philosophic habit ' of mind, of which the attributes are freedom, equitableness, calmness, moderation and wisdom. This habit is the most important of the blessings a University confers on its students. In every-day life there are so many occasions when these qualities, the noble product of a good education, will stand us instead. Freedom of speech and action within due limits, a calm undisturbed spirit discerning right from wrong, and moderation steering clear of the two extremes are virtues which are very rarely met with, and where they are found they elevate the character of the man, and win for him the reverence and admiration of his brethren. This habit also fosters the spirit of interrogating nature personally, scorning dependence on others.

Next in importance may be mentioned the quality of manly and

dignified bearing in life. On this depends mostly the reputation of the University. Not content with expecting her sons to act in such a way as becomes receipients of the high degrees which are conferred upon them, our *Alma Mater* openly asks them this question, and not until after a promise is made are they admitted to their respective degrees. A scorn of unworthy thoughts, words and deeds, a resolution to act justly irrespective of circumstances, openness, the habit of "standing upon the vantage ground of truth" are all virtues which, though found elsewhere, are yet strengthened and perfected by the discipline of the University.

Again, the sense of duty is also cultivated. Man is not born for himself alone. He owes certain duties to his mother country, the community he lives in, and those depending on him. These can be best discharged only by his advancement in knowledge. On his progress in what is true and good, in cultivation of mind, in good name and respectability and social influence, depend the honour, renown and the general happiness of his country. The most essential qualification in an eager student is awe and respect for learning and its abode. Professor Blackie says, "The worst fault a young man can be guilty of is *Nil Admirari.*" Reverence is essential to the creation of interest in, and love of, studies. Where this is wanting, there can be no real acquisition, the mind of the learner not being in the proper receptive attitude. Knowledge should also be sought for its own sake, and not for the worldly good that it may give. The moment mercenary considerations approach her, knowlege loses all the charms of her high dignity, and is dethroned from the gorgeous seat wherefrom she dictates to her votaries. In ancient India, learned men were the object of every one's veneration, prince and peasant alike bowed to the disciple of the Muses, and grants of land and money were freely made by the State for the support of learned men. From those remote times down to our own day, the lamp of learning has been kept burning, though its flame is dwindling by degrees. Even in ancient Egypt, that grand city founded by Alexander the Great, which till lately was the emporium of trade between the East and West, and which even now is no insignificant city in matters political or commercial has earned an undying name for her once celebrated library, and for the patronage she accorded to men of letters and science who flocked thither from adjoining countries. Her crude astronomers and cruder physicians evolved theories which have been the means of rousing dormant thought, and creating intellectual activity and so giving out to the world correct theories of cosmogony, astronomy and medicine. Even in the Middle Ages, not princes alone but municipal institutions too encouraged learning, and learned men by founding Professorships at the Universities and by

exempting Professors from payment of municipal taxes. Not to go farther from our own shores, Bombay has set a worthy example for her sister cities to follow. Every year a Dinshaw Monokji Petit or Jamsetjee Jejeebhoy leaves tens of thousands of rupees to the University for the encouragement of science, arts or languages. The Premchand Roychand Scholarships founded at Calcutta by the public spirited citizen of Bombay after whom they are called are an imperishable testimony of how large a sum an individual will part with to further the cause of learning. Are not these sufficiently forcible illustrations to make us revere that goddess that has lifted up man out of the depths of ignorance and misery, and elevated the greater portion of the race socially, morally and intellectually? Why then should any one profane her temple and pollute her worship by obtruding any vulgar considerations of money value on her sacred shrine?

The fact is undeniable that many of the *alumni* of our University soon after entering life either do not find the means of expanding the liberal culture they had the good fortune to receive while under the watchful care of the University, or fancy their education is complete the moment the seal of the University is set on their diplomas. On the other hand, the Western graduate makes a life-study of some department of learning that has gained a hold on his affections. In this respect, then, the East has ample need to take a leaf out of the book of the West.

Another characteristic of the University student, one quite essential to success both at school and in the wide wide world is Perseverance. Without a fair measure of it, no one can succeed in doing anything worth the name. No man achieved greatness in Science or Art by working off and on at it. The career of Robert Bruce, of Sivaji and of Haidar Ali are instances in point. In our own times, the life of Mr. Dadabhai Naoroji, the hero, as he has been termed of a seven years' war, may be cited as another instance of how perseverance overcomes obstacles which at first appear insuperable.

Passing on to the University nearest to our hearts, we must say she was organised more after the model of the examining University of London than after a teaching corporation. The marked absence of University Lectures, (which are rendered impossible by some colleges being located remote from the metropolis) the want of a University library and University athletic sports do not entitle her to the claim of a Teaching University. But as an eminent educationist of Madras pointed out some time ago, she is moving in that direction, as is seen by her system of affiliation of colleges, of compelling students to go

through prescribed courses of study therein, and by such other restrictions as are foreign to a system of "free-trade in education." But this is hardly enough. The system of examinations to which an Indian pupil is subjected from the moment he takes a pencil in hand till he leaves school or college does not exercise a wholesome influence on the growth of education. It is true that examinations alone are a safe test of how much one has learnt at school. But examinations which test not intelligence but mere memory are positively harmful. When memory is cultivated too much, the other and more important mental powers are, repressed and the man in after life becomes unfit for any original and independent work; and hence the common reproach hurled against the Indian graduate that he is incapable of original productions. Again, even if examinations are such as to test intelligence, they fail in their efficacy if too much be expected of the examiners. It is a well-known fact that the Senior Wranglers in the Mathematical Tripos are not always the first Men in Smith's Prize examinations, which are acknowledged to be of a higher standard than the Tripos, the Wranglers being expected to answer with too great a pace, far greater than that required for Smith's Prize examinations. Similarly, the Premchand Roychand Scholars of Calcutta are not always the men who figure at the top of the M.A. and B.A. Honours Lists. Another defect in the system of conducting our examinations, an evil requiring early remedy is the practice of appointing Professors to examine their own boys. It is, no doubt, too true that none but a practical educationist knows what is expected from the candidates, what their deficiencies are, and how they can be set right. But as human beings they are subject to, and cannot be expected to be free from a certain bias, which tends to make them question on the very portions of the subject they have a predilection for, and which being well-known to their own pupils cannot but act prejudicially to the interests of others. The best solution of the difficulty will be, I apprehend, to appoint as examiners gentlemen who possess the necessary qualifications, but who are not actually engaged in the dissemination of knowledge; and of such there is no lack in this Presidency. The only difficulty in such a case will be want of leisure on their part to value huge bundles of answer papers. But if examinations be held in the latter half of November, and the examiners be given two months, time to value the papers, the difficulty can be got over. Or, the other plan may be successfully pursued, as at Calcutta, of appointing educationists of other provinces and giving them the same time. In the fields of Law and Medicine, gentlemen unconnected with practice should be employed if any regard be had to the interests of candidates.

These foregoing remarks should not, in any way, be construed as casting a slur on the work of our University, but rather as the outcome of an honest desire to see progress introduced in the department of higher education. The spirit of carping criticism is as far from us as a cankerworm from Paradise. The question, therefore, of how learning may be placed on a more solid basis is of vital importance to every true son of India. Society is changing its foundations, India is brought into relations with other countries that our ancestors should never have even dreamt of, a struggle and a keen one too is going on among the nations of the globe for supremacy, new methods have to be applied, new problems are daily springing up demanding speedy solution, and it is only the young men of this generation that must gird up their loins and undertake the task in a manly fashion. And what more powerful means can be found to regenerate our people, to prepare them for this grand struggle than Education? It behoves, therefore, not only every graduate of this University but every one who has any sympathy for India and every one who is interested in the cause of learning, be he European or Asiatic, to consider this question in a suitable manner, suggest proper remedial measures, and heartily co-operate with other well-wishers and supporters so as to secure the consummation devoutly wished. It is a significant sign of the times that the undergraduates have lately taken the same view of the position and formed a University Union, but it is still in its infancy, and some time must elapse before it can become a power for good and help the cause of general weal. The Graduates' Association that was started nearly ten years ago might, had it been properly worked, have helped the University to an appreciable degree. But like the generality of Indian Associations, it proved alas! only a nine days' wonder.

AN ODE

On the Death of Professor Runganatham.

Thy hopes are shattered! thy fears were true!
  O rising Ind! thy light is gone,
The light that was to guide thee safe
  Through darker times that are to come.

Thy guide, thy friend, thy master, is
  No more! Oh! never more to rise!
Oh! cry the cry the infant cries
  When the mother leaves it lorn.

A cruel hand hath cut the stalk
  On which our hopes would blossom forth !
O niggard Time ! why take so soon
  The man before he lived his life ?

His life for him was only done,
  His life for others yet remained ;
Oh ! sadder for to think him spared
  To live the one, and nipt before
    The other budded forth to view.

But yesterday it was he woke
  From easeful slumbers forth to rise,
To do the work he fain would do,
  A work that only he could do.

O ancient Ind ! thy darling dear,
  Thy spoilt child hath breathed his last ;
The void he leaves must ever remain
  Unfilled by any in our land.

We feel before his presence raised,
  Raised to heights we nev'r could scale ;
He took us all to the heights he soared
  To all the regions of his flights.

Even those at distance gazed
  And raised themselves an inch more high—
A world was worth his intellect !
  A world his lips would charm.

His forehead high, his piercing look,
  His stately awe-inspiring gait
Made us feel the beaming might,
  The mighty man that was within.

His judgment calm, his 'nobling worth
  Redeemed a nation's sad disgrace ;
Our ancient Ind, in him revived,
  And showed the slumbering sparks within.

The East and West had met in him
  And fitted him to raise
A fallen nation from its depth—
  A depth too deep for others' might,

Oh ! mourn for him that is no more !
  The like of him is not !
From East and West and North and South
  Throng all to mourn his loss.

His faults he had, you say. 'Tis true,
  But who is he that hath no fault ?
And what are they before his worth ?
  Nothing we should heed or mind.

His faults were his, his worth is ours ;
  We mourn the loss in him ;
For in his loss we lost a friend ,
  A friend on whom our hopes were built.

Other men there are who live
  Perhaps a purer life than he,
    But they are dust before his might—
A day of such a worth is more
  Than thousand years of life ever led
    By the illustrious obscure !

Oh ! mourn we all ! Oh ! mourn again !
  Why left us he now all forlorn ?
Oh ! hast thou gone to meet thy friend,
  Thy friend whose voice was silenced late—

The voice that rang the silver note,
  The eloquent tongue that made the poet ,
Our sweetest Shelley, live again
  And sing his mind to us anew.

That voice was silenced for ever then !
  And none there are could strike the chord,
    Produce the note that charmed us all—
Oh ! for such a voice to hear !
  Oh ! for the man that is no more !

The twin-stars of our ancient land
  Have set for ev'r ! Oh ! mourn we all !
A gloom hath spread its blinding wings !
  Our eyes are dim ! Our lights are gone !

N. S. ARUNACHALA AIYAR, B. A.

THE LATTER-DAY SCHOOLBOY.

In ancient India the prime requisites of a true scholar were faith in and reverence for, the Guru or Acharya (preceptor). The parent or guardian of the pupil took care to select a competent teacher and entrusted him with the entire responsibility of moulding the mind and forming the character of his child or ward, as the case may be. The pupil reposed unbounded confidence in the goodness of his teacher's precepts and the excellence of his deeds. And on their part, the educators were in every way worthy of the respect shown them by their pupils whose interests they identified with their own. This reciprocity of feeling grew to such an extent that at length this quality of reverence became a part of the pupil's very nature, and in time it came to be considered as running counter to his grain to think of slighting his master, much less of defying him. Not to go far back, even in the sixties and seventies of this century, the schoolboy showed his master immense reverence. In particular localities the names of some educationists have become familiar as household words, while in other cases men have attained a more general reputation, and all this because of the immense success that crowned their unceasing efforts to better the cause of education. Substantial modes of recognition of merit have also been resorted to from time to time, to keep the memories of distinguished workers ever fresh.

But now the times are altered. Here we hear of the Vice-Chancellor of the University being publicly hissed, there of another Vice-Chancellor being interrupted in his delivery of the Convocation Address, just at the very time when order and discipline should have prevailed. Professor Blackie has protested against this spirit in very strong language in his *Self-Culture*. He says, "The worst fault a young man can be guilty of is *Nil Admirari*." The whole spirit of Carlyle's remarkable book on *Heroes and Hero-worship* is a plea for reverence towards what is good, great and noble. In his Wilhelm Meister, Goethe inculcates the doctrine of reverence for what is beneath, what is around, and what is above us. In our own country, the late lamented Justice Telang, in the course of his colloquies with his friends, used to regret the change that has come over the minds of the latter-day schoolboys, the change that has been the means of putting self-sufficiency in place of modesty, and irreverence in place of reverence. His own life was a practical example of reverence rightly directed. In spite of the earnest protests of a former teacher of his who subsequently joined the bar of the High Court, he

would continue to address him as "Respected Sir"—much to the reluctance of the gentleman who practised as a lawyer in the very court presided over by his former pupil. A couple of months ago, Sir Alexander Mackenzie, in his address at the City College, Calcutta, curiously enough sounded the same note of warning. He spoke in rather strong terms of the want of reverence in the youth of the present generation. He regretted that the Indian youth was flinging aside reverence which, in his opinion, was a significant moral characteristic of the Indian people. His explanation of the origin and growth of this irreverence was that the Indian youth is corrupted by badly-assimilated Western ideas. His head is filled with erroneous notions of independence and the like which have no bearing on *status pupilaris.* An effectual cure for this infection may be sought for in the class lectures where, with a little pains, the lecturer might impress on the mind of the pupil the fact that character is imperfect without reverence, and that intelligence and ability divorced from good character count for very little indeed.

THE USES OF FACT AND FICTION IN THE EARLY EDUCATION OF THE YOUNG.*

As my subject may seem at first sight a somewhat large one, I hasten to assure you that I do not intend to deal with it in its entirety. The uses of fact in education are so numerous and so varied that their complete treatment alone would require a whole course of pedagogy. It is plain, therefore, that this part of my subject can be dealt with, on the present occasion, only in its general aspect. On the other hand, the uses of fiction—by which I mean whatever is not a reproduction of what actually is or has been—are comparatively so much less numerous and varied that I hope, in addition to speaking of their general nature and value, to pass on to some of the details of their application to practice. My special aim will be to show that, even if the fiction be purely imaginative, it is quite unnecessary to exclude it from education, as Herbert Spencer and others, and Bain to some extent, practically do; and, more, that to do so is unsound in pedagogic principle, since this deprives the child of a natural and useful means of exercise. Herbert Spencer, as you know, though assuring us that he sets a high value on poetry and

* A paper read by Mr. H. Courthope Bowen, M.A., at the Meeting of the College of Preceptors, on the 18th March 1896.

art and the æsthetic emotions, practically relegates the cultivation of them to the Greek Kalends. "When," he says, "the forces of Nature have been fully conquered to man's use; when the means of production have been brought to perfection; when labour has been economized to the highest degree; when education has been so systematized that a preparation for the more essential activities may be made with comparative rapidity; and when, consequently, there is a great increase of spare time; then will the beautiful, both in art and Nature, rightly fill a large space in the minds of all"—an idea which is remarkably like Rousseau's, that if you give a child no education up to the age of twelve you will then find him able and eager to learn. Mr. Spencer's own views on development should have saved him from the mistake—if you sedulously neglect the exercise of any faculty, it will assuredly dwindle out of use. Dr. Bain would not have us ignore art and poetry; but, when dealing with literature, he pushes the subject-matter into the background. Speaking of purely imaginative literature, he says: "This kind of imagination is to be viewed, in the first instance, as a source of pleasure, an ingredient in the satisfaction of life. In addition to our enjoyments gained from contact with realities, we crave for the contribution that comes from ideality. Now, ideality is a different thing for different ages: fairy-tales and extravagances for the young, the poetry of Milton for the old. There is nothing educative in the first instance; we are not aiming at instruction, but drinking in emotion. The gratifying of children with the literature of imagination is a matter for the parent, as much as giving them country walks or holiday treats." Later on he adds: "When we come to fictions of a lofty order, as the works of the great poets, . . . we imbibe into our recollections the highest strokes of human genius. Here, then, fiction is an element in our education"—a statement which seems to me to give away the whole case. How far this education should be given in schools is a question, he says, for consideration. But, surely, if this kind of literature is of such striking power as Dr. Bain describes it to be in the very same chapter from which I have quoted, schools cannot afford to ignore it; they should enlist its service and turn it to educational use, and not leave it to the random attention of parents—noting, by the way, that, though instruction and education are closely related, they are not synonymous. In short, even as Dr. Bain puts it, the question evidently reduces itself to this—Shall we use a child's spontaneous activities and natural delights as a means of education, or shall we push them aside and adopt other arbitrary, and mainly adult modes and means of exercise? Shall we assign one department of material and mode of educational activity to the home and

another distinct department to the school, or shall we strive to bring the home and the school into as close an organic union as possible?

But, before proceeding further with the consideration of such questions, let me, for a brief space, describe what seems to me the psychological aspect of the case. Excuse me if I go into some rather elementary details. The mind, in the first instance, gets its material through the senses. When the mind becomes conscious of, and takes account of, what the senses present, it is said to have a presentation, or sense-impression. When, besides being conscious of a sense-impression, or mass of sense-impressions, it interprets, and gives a definite meaning to, this state of consciousness and refers it to something outside itself, the mind is said to form a percept. As Professor Sully puts it, perception is mental activity employed about sense-impressions with a view to knowledge. It is evident that neither sense-impressions nor percepts can be accurate and perfect from the very beginning. There must be a gradual growth in the general apprehensive power of the mind, in the working of the senses, in clearness of and discrimination between sense-impressions, and in interpretation of them. For this there are needed prolonged experience, repetition, and power of retention. In short, a good percept is a growth, not a ready-made thing imposed by one mind on another. But the mind's activity is not restricted to the particular, the isolated and empirical. Through the combinations and permutations of its percepts, by means of abstraction, comparison, discrimination, classification, generalization, it moves forward to the formation of general notions or ideas of things and of their qualities. General ideas, or concepts as they are called, are not perfect at once; for a great number of us, many of them never become perfect at all; and from their very nature some of them are incapable of absolute accuracy. Their perfection depends upon the gradual perfecting of the processes of abstraction, comparison, &c., upon the perfection of the percepts out of which they rise, and upon a more and more enlightened experience, and a more and more accurate judgment. Concepts, too, are gradual growths; and the teacher's task is not to impose them ready-made on the mind of his pupil, but to stimulate, sustain, and direct him in improving their contents and the modes of activity by which they are formed. This he can only do by helping to provide a wider experience, and by encouraging his pupil's self-activity; not by discouraging and depreciating this activity by rejecting its results and substituting other ready-made results which are not the pupil's own, nor by prematurely demanding from his experience what his experience has not in it to give. Accuracy cannot be imposed by authority nor secured by compulsion and punishment. It is a growth, to be produced

by gradually inducing a clearer perception and deeper appreciation of its value. Premature undiscriminating insistence on it impedes or stops self-activity. If we can encourage and help the pupil to be progressively accurate up to, or nearly up to, the limits of his growing experience and knowledge, we shall, indeed, have no reason to be dissatisfied.

But, besides using its materials for the formation of general ideas, the mind uses them—its percepts and mental reproductions—for the construction of new mental pictures and combinations, and for the creation of ideals, that is, for imagination and idealization. In imagination—constructive imagination—the mind selects from the material already possessed or in process of acquisition such wholes or parts of wholes as it deems necessary for its purpose, and then combines these to produce the new result desired. The materials should be truly possessed and clearly visualized; there should be a distinct definite idea of the result to be produced; there should be sound judgment in selection, and knowledge of how to form the combination, together with experience of what is possible and harmonious in combination. It is hardly necessary to point out that the beginner cannot possess all, or any, of these qualifications in perfection. The materials will not be truly possessed and will be weakly visualized, and they will be too few or not very suitable; the resulting whole will lack definiteness; the judgment will be imperfect, and the knowledge and experience insufficient; while the rough models chosen to guide the construction will not always be the best for the purpose. In short, through lack of knowledge and experience, the child's imagination will be imperfect, often incongruous, sometimes impossible. Are we, therefore, to ignore his imagination or discourage it until all his means and modes are perfect; or should we recognise it, and, taking it with all its imperfections, seek gradually to improve it without undue checking and coercion? It is certain that we cannot improve it without exercising it; and it is certain that the exercise will not be truly effective unless it begins with the child, where he is and as he is, and unless it moves forward at a pace suitable to the growth of his powers and the widening of his experience. When teaching a child to walk, the great thing is not merely to walk up and down in his presence, but to set *him* walking, and to seek gradually to improve *his* mode and manner. Our aim is not to get him from one chair to another, but to teach him how to use his limbs. And he can only begin in his own manner. So here, the main thing at first is to set the child imagining and to improve *that*. The actual resulting mental picture is of secondary importance in the earliest stages, and commonly its intrinsic value at best is either *nil* or very transient. We need not be impatient because it is often out of touch

with actuality and at times impossible. After all, the angels of Botticelli and Fra Angelico are quite impossible as far as human experience goes; and so are "Paradise Lost," "The Ancient Mariner," More's "Utopia," "Pilgrim's Progress," and many another thing we could but ill spare.

Idealization is commonly defined as the formation of the highest conception of a thing. It is generalization; but, instead of aiming at bringing together all that is typical in the particulars examined, it seeks to combine only what is highest and best in them. By its very nature it transcends actuality, yet is not out of touch with fact. If, when ideals of goodness, of beauty, of conduct have been formed, it should afterwards be found that it is quite possible to attain to them, they would cease to be ideals in a true sense. Still higher above those heights would rise the true ideals—for ever unattainable, yet for ever drawing us towards them, and showing with their light the way our feet should climb. They take their rise in the experience of fact but pass through fact to a region beyond actuality. Yet they are none the less true, if rightly formed, merely because they cannot be completely realized. To aid his pupils in forming *ideas* of goodness, truth, beauty, and in transforming these into *ideals* of conduct, should be one of the chief aims of the teacher.

You will now, I think, see what in my view are some of the chief relations between fact and fiction. Unless the senses, which give the mind its first material, are exercised on realities, they cannot give the mind the sense-impressions which it needs. Unless observation—which is of supreme importance in the earlier stages, and, indeed, important in all—unless observation is occupied with realities, it cannot do its work properly, nor provide the mental food necessary for mental growth. From observation, experience, and thought springs the mental life of man. And so, too, in generalizing, unless the processes it implies are concerned with realities, not only will the resulting generalizations be unsound and of no permanent value, but also the processes themselves will be imperfectly carried out and fail to produce the needed development; though we must remember that realities do not reveal themselves as such to a young child with the same fulness as they do to an older child, nor to an older child as they do to an adult. The case is very much the same with imagination when the child uses it in order to mentally picture a description or understand a picture. He will be able to visualize or understand only so far as his mind is in possession of the requisite material; and that will be best which he has really made his own from observation and experience; or, in other words, it will be fact or what seems to him to be such. This also applies, to a

great extent, to the child's use of imagination in original construction: but here, whatever may be the material used, the character of the construction lies within the child's own power; and, in his choice of the particular construction, there is no more reason to restrict the child than the man of science solely to the region of the actual, or what seems to be such to the child himself, or his human surroundings. To do so would be to impede the child's own spontaneous movement from the known to the unknown—for the actual here means that which is known to exist. Experience and truer knowledge will in due course correct his faulty constructions. The main thing is to insure, as far as possible, that the child shall not follow the lead of vague or excessive emotion, but that the emotion aroused should be enlightened by intellect and controlled by will. The man of science, with his mind instructed by fact and educated by experience, is not only an observer but also a discoverer: and he cannot add new territories to the realm of knowledge without crossing the frontier of the known. No doubt many an expedition will be fruitless; but it is only by such expeditions that great discoveries are made. The man of science gains his strength and skill from observation and experience; but when searching for a new truth, his conjectures and hypotheses and mental pictures go beyond what he actually knows; though, of course, when what seems a new truth has been lighted on it must be brought into touch with known fact before it can be accepted while the discoverer himself, however much he may strain forward into the unknown with one hand, must never lose his firm hold of fact with the other. Let us not forget that the child's imaginings are often his spontaneous endeavours to discover.

I have spoken only of the realm of knowledge. In the realm of art, where imagination subserves the purposes of pleasurable feeling rather than those of knowing, it is plain that still greater freedom must be allowed in the choice of the resulting construction unless art is to be synonymous with photography. There must be something more than plain matter of fact in poetry, prose, or picture to give it a right to the name of art—a touch of feeling, a gleam of light, a sense of harmonious construction, a breath which blows aside, if but for an inch, the dust of the actual. But the strength of art lies as much in revelation as in invention. Its essential qualities are insight, selection, and beauty of combination. It, too, like idealization—which is the fine art of conception—must take its rise in observation and experience, must draw its materials from them; and, however high it may rear its head, must keep its feet firmly planted in realities. But, though æsthetic imagination must perforce in order to be intelligible, and draw the details of its

materials from the common knowledge and experience of mankind, its right to a large and generous freedom in the choice of constructions should not be unduly questioned. The test of matter of fact cannot always be applied to the resulting construction.

From what I have just said three deductions follow naturally, (1) In all departments of mental exercise, matter of fact is of great value and in most it is of supreme importance. Facts must be sought for and made as accurate as possible. But in some departments, especially those into which æsthetic and ethic sentiments enter largely, and in which ideals, therefore, play a prominent part, matter of fact is not the only thing needed, nor can we restrict the exercises wholly to the limits of known actuality. (2) Accuracy in matters of fact and in the use made of them is a slow and gradual growth ; and we must be content to work at first with inaccuracies, while moving ever towards accuracy. (3) The law of mental development is that the child's mind must be rendered self-active, and the mental exercises must be given when they are needed and be what are needed, always in harmony with the nature of what is exercised, and continuously in proportion to its strength. This being so, and seeing that the child's store of real fact is small, and his appreciation of and insight into fact and the relations of fact slight and imperfect, some of the exercises which his mind demands for its development must at times pass beyond the limits of the actual—especially in the earlier stages—and the results be out of keeping with fact. The teacher's task is not to ignore or to stop such activities, nor to denounce and compel, but to take them as they are and help them gradually to become better servants of the mind, encouraging and aiding the child to correct the faultiness of his results by his ever widening and deepening experience wherever this is necessary. The child holds quite as strange, and often as impossible, beliefs about matters of geography, history, every-day life, and the physical nature around him, as he does about fairy godmothers and magic wands ; and the last are no more baneful than the others.

I shall now turn to speak more particularly of the educational uses of fiction ; and, seeing that such controversy as there is on the subject centres itself chiefly round fairy tales, as having least in common with reality, I shall speak of them first. Fairy stories and other tales of the extraordinary and the extra-natural delight children, we are told, chiefly by rousing their wonder. If we wish to produce this effect, why not bring before them the wonders of Nature, the fairyland of science ? Well, there is one little drawback to this which ought to be mentioned, and that is that these wonders are not wonders to little children. It

requires a mind fairly developed and fairly well stored by experience to see the wonderfulness of Nature or science. What thrills a man of science, what wakens his spirit and sets it agaze, is accepted by the empty and inexperienced child-mind as the merest commonplace matter of fact. It may stir his curiosity somewhat for a while, and set him asking: "Why?"; the broader and fiercer manifestations of elemental energies—the thunder, the lightning, the hail—may startle and even fill him with fear; but the quiet, every-day workings of Nature and life excite no wonder in a child's mind without the contrasts and the insight which experience has not yet given him. Little children may get much that is pleasurable and helpful from this source; but not wonder. It is not to awaken wonder that we make so much of plants and animals in the kindergarten and afterwards. Moreover, the material which little children gain in this way from Nature being but slightly understood, and not seen in sufficiently varied applications, is sure at first to be used by them for constructions as untrue to fact and as fantastic as any in fairyland. Indeed, unless I greatly mistake, it is in this very way that the child gets his fairy outfit. Around him changes are always going on: night follows day, leaves come and go on the trees, seeds sprout into plants, buds open into flowers, eggs hatch into chickens—forces are at work which produce changes. It is natural to the child—to whom already an adult seems to have practically unlimited powers and skill—to make these forces the attributes of some person or being. His fairy queen shall have this power of transforming herself and other things. His hero shall out-do the bird in swiftness; his strength shall be the strength of ten; his purse shall keep perpetual Christmas Eve, and its contents be ever mysteriously renewed. In fact, every characteristic of fairyland can be easily seen to be directly derived from the child's observation of his surroundings; and the strangeness of the combinations is due to lack of experience, to imperfect observation, and to a strong tendency to idealise and exaggerate. In other words, fairy stories are the natural spontaneous constructions of childhood made out of material gathered by itself, but whose conditions and inter-relations it does not yet fully understand. It is natural that in the fairy world things should suffer but little restrictions from natural laws and material necessities; and that, in order to gain the freest scope for idealization and movement, spirit, as Miss Anna Buckland puts it, should be given a kind of superior action over matter. This is why, in my opinion, children love fairy stories—far more than because they give a vague pleasurable emotion or excite wonder; and it is for this reason that I hold that such stories may be made of great educational use in the earlier stages. They are in

harmony in those stages with the child's own mode of mental activity, and by using them we fulfil that great law of teaching—begin with what interests now, and move gradually and connectedly to what shall interest hereafter. I may add that it is almost exclusively among fairy stories that there are to be found tales not only suitable to little children, but also really belonging to a high form of literature, while the best of them, such as "The Sleeping Beauty" or "Beauty and the Beast," contain fresh and naïve touches of ethical teaching of the very kind we need—the brave struggle of the prince through the tangled wood, the triumph of love that has learnt to look through an unpleasing exterior to the heart within, with many another unobtrusive lesson which lures us on to virtue.

But there are other stories besides those of fairyland; and of these I must now speak. They belong for the most part to the later stages of childhood. There are "allegories"—but these are commonly too full of abstractions and symbolisms to be very interesting to children. They may enjoy the story—as in the case of "Pilgrim's Progress"—but the symbolism, as far as it makes itself evident, rather disturbs than promotes the interest. Still, in the hands of a master, an allegory can convey a moral precept in a very striking and memorable way, and one which makes its meaning clearer. There are "fables;" but these are too often satires to be very suitable to children. They are, however, sometimes full of real fun; and, if the laugh is good-natured and there is no sneering, they may help us now and then to criticise conduct without being unkind or too personal. The power to see the humorous side of things should not be neglected. And lastly, there are "realistic stories" and "true stories." Of the latter I need not speak here, except under the head of the general uses of stories. Realistic stories may be made of considerable use; but, from the fact that they profess to give us pictures—not mere reproductions—of real every-day life, and that real every-day life is not usually very eventful or exciting, they are apt to mislead by their writers making the abnormal, exceptional, and even the disagreeable, far too prominent in order to enliven the narrative. Just because the account of a naughty child or a very odd person or strange state of things is wont to prove more attractive than that of ordinary persons or conditions, so what is called realism is liable to give a very distorted idea of reality. Besides, it is very commonly forgotten that a story of the real cannot be real to a child unless his mind possesses the material and the experience necessary for making the required constructions; and this holds good also of true stories, which are not understood and assimilated by a child merely because they are true. After

all there are truths higher than mere matter of fact. It is possible to get closer to the true meanings and duties of life than human action gives evidence of. Bacon's realistic attitude in his "Essays" does not give us the highest truth. And, though a sound organization of secondary education in England must be of great benefit to us all, it will be long, I fear, before it becomes a matter of fact. The reverse of the difficulty is sometimes amusingly brought out when a teacher relates some ancient legend very realistically without giving the children the right point of view—that the legend represents what was once believed to be true. Children strongly resent being tricked, dearly as they love realism. They do not dislike a legend as a legend—wondering the while whether it could possibly be true. But they resent being made to think it true, and then find that it is not. And the resentment is stronger when the story is not ancient but modern, and about children like themselves.

There is another danger about realistic stories which should be borne in mind. When the teacher wishes to set an example of conduct before the children, it is commonly better, as Miss Buckland points out, to place the stories in times and countries different from the present—and she instances the story of "The Good Samaritan"—so that the children may be inspired to a general line of conduct, and not be led "to a petty vain attempt to repeat what has been admired, in the hope of getting the same applause."

I take it, then, that realistic stories for children, when used for educational purposes, should be true to life and nature, and should deal with their simple ordinary laws; should have no forced moral; should introduce no feeling but that natural to the children and to the situation; and the scenes and characters should be taken from the life which is natural to childhood or which is, at any rate, easily intelligible to children. I need scarcely add that most of the stories nowadays ostensibly written for children are really for the sentimental adult. Not that I wish to condemn them—the "Adventures of Alice" are a perennial delight; but they are not for children.

And now I think the ground is clear for a statement of what, to my mind, are the uses of fiction in education. What I say will refer to stories in general used in one part or another of education up to the age of ten or eleven. Stories enlarge experience by giving descriptions and pictures of the practical working of much that has been observed, and of other matters similar to these; they exercise the imagination and the feelings in a fitting way; and they supply examples and ideals. They can also be used for giving information of many kinds. Stories enlarge

and supply, so to speak, the beginnings of experience by illustrating the practical working of some of the simple laws which govern life. True experience can only come with years; but, meanwhile, children need something to guide them. Precepts and dogmatic teaching do not, as a rule, make much impression on them. "We may tell children that certain causes produce certain effects, but the lesson is soon forgotten; if the law, however, is shown in action in a story, the consequences remain fixed in the mind, and, again and again through life, serve as a guide under similar circumstances." Stories show a child other children like himself living and acting together, and so enable him in a measure to make his own self objective and to form sounder judgments about that self. They, in a sense, widen his circle of intercourse and so lessen his pre-occupation with his own likes and dislikes and wishes.

Stories exercise the child's imagination—not only receptively and imitatively, but also by supplying him with much material and many useful models for constructions of his own. A very little care in selection will enable the mode of activity to be both simple and suitable. They can be made to exercise all the simpler non-egoistic feelings, and especially sympathy, which has been called "the imagination of the heart"—and this without the often too keen and confusing excitement of real cases personally present. The child sees the feelings of others at work and so learns still further to observe and realize the feelings of those around him, and to imagine what they will be in cases beyond his experience.

Stories supply examples, of which I have already spoken. They supply also ideals, which are still more important, not only on the ethical but also on the æsthetic side. A life unstirred by admiration, unlighted by a gradually growing love of excellence, is but the life of bird or beast, not that of a human being. We must hold firmly by the natural and real, but chiefly that we may reach the spiritual beyond it. Ideals, like much else, are growths; and they must seem to us to be partly realizable by ourselves or they will have no influence on conduct, and will not call the will into play. The ideals we set before the little ones should be children's ideals, which will grow into the man's ideals later on. And, in order that their partial realization may seem possible to children, we must clothe these ideals in definite forms and set them doing definite things. From the characters and actions must simply, unobtrusively, almost unconsciously, spring the moral maxims which we wish the children to adopt as their own true guides. Dogmatic teaching in this matter is quite inadequate. In no other department are stories so valuable as in this; and in this a high place must be given, I

think, to the best of our fairy stories; because they are full of childhood's ideals. If the prison-house of matter of fact must perforce—even for his very health and safety—close round the growing boy, let us at least leave it here and there open to the sky.

Would I, then, you may ask, make stories, and especially fairy stories, the central predominant interest, the source from which all else must spring, in the education of children? My answer is certainly: No. The central interest should be for them their natural and their human surroundings—plants, animals, and human beings. It is from intercourse with these that the stories must spring, not knowledge of these merely from the stories. In what I have been just saying, I have been dealing with one only of the means at the teacher's command, one only of the higher uses of fact. There are other means and other uses which have to be considered before we can decide on what shall be predominant. But, whatever may be our decision, the firm basis of all must be reality, matter of fact. There is no valuable art, there is no sound morality, which is not firmly rooted in fact, and does not grow up from thence by means of experience. But in both there is something more than matter of fact—the aspiring spirit of humanity,

> Still climbing after *wisdom* infinite,
> And always moving as the restless spheres.

We shall not compass our great ends as teachers, we shall not rear true men and women, by restricting children to matter of fact, and clipping the pinions of their roving fancies. As imagination and idealization without fact become empty dreaming vanishing phantoms, so fact without imagination and idealization makes man a beast of burden or a machine.

DO WE EQUIP OUR PUPILS FOR LIFE?

(S. Vasudevan.)

We are all schoolmasters and thousands of young boys are entrusted to our charge. We are teaching them daily and year after year, hundreds are emerging out of their school-career into the world. We say we have prepared them for life, and they are certified to that effect. They are supposed to be well equipped to run their life's course. Whether they fare well or ill, it depends solely on how they have been educated. It is expected that we teachers do something to minimise the number of

unsuccessful runners in the field by so arranging them that each is placed on his own congenial and fitting ground, and that there might be the least chance for anybody to fail. Certainly it is these teachers that can know, better than anybody else, the adaptability of a particular individual's mind to a particular line, and consequently it is they that could and should train him up to it, so that when he enters life he may smoothly get on without any hitch or inconvenience. Indeed the teachers can either make or mar a man's life. It could even be asserted, that, if anywhere we notice the decline of a nation or the decay of its physical, intellectual or moral activity, it is the teachers that ought to be held accountable; the country has not had proper educators in it, and hence all the miseries and the complete downfall.

Do we do full justice to the task that we, as schoolmasters, have undertaken is the question to be answered here. Do we feel the responsibility that we ourselves have thrown on our shoulders ?, are we conscious of the onerous work which we have to do ?, do we not lose sight of what we have to perform ?, do we feel within the heart of hearts what we are actually giving the public to understand when we say to them that we have come as teachers for their children ?, in short do we understand the duty that devolves on us when we get ourselves ordained ? is what I propose to examine in this paper.

If education includes in it the formation of habits, the moulding of character, the strengthening of common sense, the growing of innate faculties, in short the making of the whole man, it is with great sadness of heart I have to say that we are absolutely doing nothing in that direction We do not go close to the students we teach, and mingle with them so that our personal contact may have its wholesome influence over their breeding, but we keep ourselves aloof, lest we should lose our self dignity by thus stooping down to their level. We thoroughly dispense with the casual suggestions, the unconscious instruction, the stimulus, the sympathy, which our intercourse with them on a large scale would create. We deny ourselves the pleasure, and the taught are denied the benefits, of that real and substantial education, of that method of advancing knowledge, which can be found nowhere but in a free and unreserved mingling. We allow no free circulation of thought, no free interchange of ideas; consequently we lose the fine opportunity of enlarging the mind, of advancing the social or moral progress, of creating in them an ardent love for a particular study or thing. The choicest occasion for us to develop in them the noble sentiments, we intentionally let go. The most fitting time to make them understand what is meant by devotion, the noble giving up of oneself to the interests of anything about which

one may be enthusiastic, is allowed to pass away unused and even unnoticed. But if we say that we educate boys whenever we make them pass a University examination, then we are doing all that is required of us. We do not shrink from filling up their minds with as much information as possible. This credit also must be given to us that, in cases where we find it very difficult to stuff some information in, we do not turn back in despair but do our best in hammering it in, thus enabling them to get through the tempting ordeal. We do all this and much more.

But is this that we have promised we will do? No. We have promised to mould the young, plastic and impressionable minds. We have promised to lead the children that are groping blindly after the unknown. We have promised not only to satisfy the hunger of the little soul for something beyond its own narrow view, but also to break the prosaic realism around it by interesting presentations, and by a vigilant and skilful guidance. We have not only promised to allow the intellect to imbibe its full, but also to watch the imagination, to read the thoughts of the child, to supervise its mental actions, and thus to insensibly grow a healthy mental constitution. If the child has in its heart some dumb longings, some indefinite striving after an ideal, we have promised that we would put it in the midst of a fair environment, and presenting it a pure lovely and ennobling ideal, turn its mute aspirations in the right direction. If the child is craving for beauty, we have promised that we will take it to the land of health amidst fair sights and sounds. If its heart is so made that it is easily touched to enthusiasm, we have promised that we will take care that nothing will happen that will lead it to unlikely and pitifully disastrous actions. Yes, we have promised to build up the character of the child, to make men out of the children that are given to us.

This is our promise; and to fulfil it, nothing short of an earnest devotion to the noble duty, nothing short of living with and living for the children will suffice. We have undertaken the responsible task of "bringing the most intensive individual existence into harmony with the most extensive social life." To be up to our task, we must know how to love children, and how to thoroughly understand them. We must have a very sympathetic eye to which the child's character may be visible. We must be able to go out of ourselves, stand at the standpoint of the child and remember the days when we ourselves were children too. We must sympathise with the child-character. We must exert our personal influence over them. It is such close intimacy, such vigilant watch of the one over the other, that can make out of the child what is required,

Taking schoolmasters as a class, we can fairly divide them into two distinct classes, those who have been in the department for a long time and are superannuated, and those who have come in fresh and have consequently energies yet to put forth. Though we expect the knowledge and information the masters possess should widen with their service and experience, they should perform their work with greater ease and facility, and consequently their attachment to the work must grow and strengthen with the time, yet we do see that they get disgusted and would very gladly quit the place and shake the dust off their feet, if they could but find some other source for their maintenance. Not having any inclination to study further, they find they lag behind and cannot keep pace with the advancement of the world. This consciousness of their own incapacity is the saddest element. They see that they have got some provision made for them already, and to do anything more is simply to have themselves taxed with overwork, which they could, without any serious harm, avoid. They think that their duty is over, and if they be paid still and tempted to do work, they have to run in the same course as they have been running hitherto. They do not with great pleasure welcome the entrance of fresh men into their own line, for they know that these young people are more energetic, and because they could please and give greater satisfaction to the taught, they could succeed in throwing their predecessors into the shade. So they withdraw a little, and unconsciously cultivating a tendency to keep themselves aloof, form a separate body and do not mingle with those that come after, who would profit much if these would only condescend to work with them and give them the benefit of their past experience. True it is that the tediousness and monotony of the repetition of the same work year after year has wearied them out. Instruction with them has become mechanical. If they do not exhibit any enthusiasm in their work, if they appear to have lost all spirit in it, it is but a result which is inevitable. They are under the impression that what they once learnt, they have now simply to communicate, and this is education. If the nobleness of the duty is thus forgotten, and if they metamorphose themselves into transmitting machines, how can we expect them to be active, to be enthusiastic, and to be cheerful? No, they are dead to their work, and they are cheerless and sad, because they are driven by necessity to this unpleasant task which they would fain abandon if they could.

Many such masters there are who do a great deal of active harm to the country. I do not like to enter into the details of the thing and put their sad pictures before you. However, I must say that I have seen several, who minimise as much as possible their direct intercourse with

boys. That natural craving of the youths for direct contact with higher and more experienced intellects is starved, and one of their own class and level talks to them, teaches them, corrects them, reproves them, and punishes them even. The indifferent master is simply a looker on and it is very rare that he interferes with the monitor's work. What he cares for is still silence. If the monitor is so chosen that he can strike terior into the minds of all, the teacher's business is over. Thus the boy's natural activity is completely curbed, their curiosity is repressed, their hearts are accustomed to terror; and the school where they are *educated*, always brings to them very terrible associations, and they could never think of it without a shudder, for so firmly has the impression been stamped in their minds. The teacher has not entered into their feelings and so they have not breathed a word in the class. There has been no flow of cordial sympathy between them, and so they have known that certain repulse must be incurred, before one of their wants is relieved or listened to.

The foregoing remarks are directed to those masters who, on account of age or similar causes, are thoroughly inefficient and require weeding out. Of the remainder, a considerable proportion unfortunately consists of men who look forward to leave educational work, and betake themselves to some more remunerative field, usually the legal profession. We have to examine how far the existence of this class is necessary or beneficial to schools in general. It may be argued that, if really able young men who would ultimately seek more paying professions spend a few years of their life in honest educational work, the gain is on the side of education, and no harm is done to anybody. But this is not the proper way to look at the matter. No work can be properly done, unless it is done with a full heart and oneness of purpose; and for one person who has sense of duty enough to devote himself fully to educational work, though it is not the work of his life, there are scores who do it negligently and produce very undesirable results. The contagion spreads and the feeling of responsibility considerably slackens. The constitution of the teaching staff of several schools and colleges in Madras will illustrate the meaning of the above remarks. There is hardly one institution in Madras in which some of the graduate teachers have not either entered upon the study of law or proceeded to the various stages of the law course. These have hard work with their legal studies, and can never be expected to do anything like justice to their educational work. From this point of view, the existence of the Law College with its morning and evening classes is an unmitigated bane to education in Madras. It tempts young men just out of their arts course to attempt teaching for

a pittance for the sole purpose of keeping themselves up during their more serious law studies; and the gravity of the situation is increased by the fact that managers of institutions sometimes condescend to engage graduates of this class for salaries which it would be an insult to mention openly. This is an offence of the worst sort against education as it ought to be. It is however to be hoped that the Madras Teachers' Guild will give the subject its early consideration, and bring to bear against the evil practice a strong concensus of opinion of its members.

Some ideas now suggest themselves to me as to how the existing defects may be remedied. First, every school should be so constituted that it may be not only a house in which the children could learn some new truths, but also a home for them. And as in a house there are parents and other relations whom they fear and love more than they fear, so in the schoolhouse there ought to be persons who could attract the young ones by their affection, and thus could exercise over them an agreeable and wholesome control. And it should be so arranged that they live with the boys and pass the major part of their leisure with them. I mean it should be something of a boarding school where the teachers should be required to reside within the school compound. It should be something of a family with this difference that the pupils are allowed fuller freedem of action and thought. If this ideal be realised, then it may be said that education will be perfect. But as ideals are not to be fully realised in this world, our object in every attempt must be to approach the ideal as much as possible, as far as our present exigencies could permit. In this sense then, we should first see that those who are taken as teachers are kind in their speech and sincere in their affection. The sincerity will immediately communicate like an electric spark to the children's hearts and set them in sympathetic vibration. There we have almost the whole thing achieved. For, the children, not finding a better home, naturally like to be in constant communion with that spirit which, they feel, is loving towards them. However unattractive the schoolhouse may be, there is within it an element which could more than make up for all the external deficiencies. If, in addition to this, the teachers be also capable of pleasing them intellectually, that part of the requirements is completely satisfied.

Secondly, the playground should be better attended to and be made more attractive. One way of improving it is for those who are teachers and masters to mingle with the boys freely there; and it should be made a place where the teachers and the taught can come into closer contact, where each can understand the other better, and where it is possible to

have that sort of unconscious communication between heart and heart. It is there that character can be formed, good habits can be insensibly taught, polite manners can be cultivated, and good taste can be induced; rough words, obscene ideas, and repelling behaviour which sometimes contaminate schoolboys can be kept out. There they can be taught how to shudder at an immoral idea, how to fear God, and how to be pious towards Him. More than anything else, it is there that manliness, strong common sense and pluck which are very estimable qualities and are precisely those our people are wanting in, can be infused and developed. So it must be our particular care to see that the playground is well frequented, and that it is well arranged so as to bring in a good gathering of all. Children who are naturally fond of play, and who will make a playground for themselves wherever they go, would be very much pleased if they find that there is a proper accommodation made for them, and much more pleased if they find that teachers whom they fear and respect do not feel themselves too high to share in their sports as well. Such attachment both in and out of the class hours would go a long way in creating that desirable sympathy which has been a long felt want.

Lastly, it is to be added that the Government have recognised the importance and the nobility of the profession, and have begun already to do some practical work in the right direction. They demand that at least a certain proportion of the total number of teachers in every school must be trained and qualified for this special purpose. But it would be far better if they insist on having all of them trained and on having nobody as a teacher who has not previously devoted some of his time in learning what he is to do. The importance of getting oneself trained before one comes forward as a teacher cannot be over-estimated. We must all be very thankful to the Government for having extended the training department, and for having thereby stimulated a liking for the teaching profession in the minds of the mass of the population.

Besides, some provision must also be made for those teachers that are impaired by old age and infirmity for further service. They must be made to retire with some gratuity or pension, the value of this depending on the amount of service they have put in. It is really undesirable to have these disqualified men in service. New active trained men must be brought in, and the best intellects must be attracted to the work by the holding out of fair prospects. Then we shall have men as teachers, who will feel their interests welded to that of students, and the object of education would cease to be the mere passing of examina-

tions. Education will, instead of being merely intellectual and physical as it is now, have a moral and religious side to it, and the pupils turned out under such a system will fight the battle of life with less diffidence than now. The purpose of education will be realised and the progress of the nation as a whole will be well secured. Then we shall be equipping our pupils for life.

UNIVERSITY OF ALLAHABAD.

TEXT-BOOKS FOR THE EXAMINATIONS OF 1898.

ENTRANCE AND SCHOOL FINAL-EXAMINATION.

ENGLISH.

(The same as for 1897.)

INTERMEDIATE.

SCOTT: "Marmion."

GOLDSMITH: "The Traveller," "The Deserted Village."

MILTON: "Comus."

CHURCH: "Trial and Death of Socrates." (Golden Treasury Series.)

F. HARRISON: "Life of Oliver Cromwell."

HELPS: "Life of Columbus."

MURISON: First Work in English, edited by Adam for Indian Students. This book to be used in its practical application for exercise in composition, not for examination in the text.

B. A. EXAMINATION.

SHAKESPEARE: "As you like it," "King John," "Othello," "Tempest."

MILTON: "Paradise Lost," Books I., II., V.

BYRON: "Childe Harold," Cantos III, and IV.

Aspects of Modern Study "University—Extension—Addresses." (Macmillan & Co.)

LANDOR: "Selections" by Sidney Colvin, Nos. 4—9, 18—21, 34—37, 40—44, 49—129, 185—251, 273, 276—280, 291—299, 309—320. All inclusive. (Golden Treasury Series.)

PATTISON: "Life of Milton." (English Men of Letters.)

HELPS: "Essays, written in the Intervals of Business."

DOWDEN: "Shakespeare Primer."

ABBOT: "Shakespearian Grammar." (So far as it bears on the plays prescribed.)

Shaw: "Manual of English Literature"—the portions bearing on the above.

M.A. EXAMINATION.

Shakespeare: "Tempest," "Romeo and Juliet," "Macbeth," "Coriolanus," "Anthony and Cleopatra."

Chaucer: "Prologue," "The Knight's Tale," "The Nonne Prestes Tale" (ed. Morris).

Ward: "English Poets," Vol. IV.

Milton: "Sonnets," "Paradise Regained," "Samson Agonistes."

Tennyson: "In Memoriam."

Bacon: "Essays."

More: "Utopia."

Froude: "Short Studies on Great Subjects," "A Fortnight in Kerry," "Reciprocal Duties of State and Subjects," "On Progress," "Education," "On the Uses of a Landed Gentry," "Party Politics."

Carlyle: "Heroes and Hero Worship."

Oliver Wendell Holmes: "The Autocrat of the Breakfast Table."

Thackeray: "Esmond."

Morris: "Historical Outlines of English Accidence." (Revised by Kellner.)

Kellner: "Historical Outlines of English Syntax."

Stopford Brooke: "Primer of English Literature."

Saintsbury: "Elizabethan Literature."

B.A. EXAMINATION.

Philosophy.

Ladd: "Primer of Psychology." (Longmans, Green & Co., 1894.)

Bosanquet: "Essentials of Logic." (Macmillan & Co., 1895.)

Berkeley: "Dialogues of Hylas and Philonous."

Hume: "Inquiry concerning Human Understanding." (Ward, Lock and Bowden's edition.)

Butler: "Fifteen Sermons." and "Dissertation on Virtue."

Mill: "Utilitarianism."

Dewey: "Outlines of Critical Theory of Ethics." (Bombay, Geo. Bell & Sons.)

Flint: "Theism," Chapters I.—IX.,

or

Sidgwick: "Outlines of the History of Ethics."

M.A. EXAMINATION.

Plato: "Republic" (in an English translation, either Jowett's or Davies and Vaughan's.)

ARISTOTLE: "Nicomachean Ethics." (Translated by Peters or Williams.)

KANT: "Critique of the Pure Reason." (Translated by Max Müller.)

BERKELEY: "Principles of Human Knowledge."

HUME: "Inquiry concerning Human Understanding," "Inquiry concerning the Principles of Morals."

LADD: "Outlines of Physiological Psychology."

SIGWART: "Logic." (Translated by Dendy.) 2 Vols.

SETH: "Scottish Philosophy."

T. H. GREEN: "Prolegomena to Ethics."

WINDELBAND: "History of Philosophy." Translated by Tufts.

ENTRANCE EXAMINATION.

SANSKRIT.

"Selections in Prose and Poetry" by ADITYARAMA BHATTACHARYA omitting "Vakabadha" and "Andhamuniputrabaddha." Grammar: "Upakramanika" of RAJ KRISHNA BANARJI or any other elementary book in English or in Hindi covering the same ground.

INTERMEDIATE EXAMINATION.

KALIDASA: "Raghuvamsa." Cantos I. and II.

BHARTRIHARI: "Nitisataka."

APTE: "Guide to Sanskrit Composition, including a careful study of the Sanskrit passages in larger type found at the end of each Lesson, for the purpose of Translation into English.

Grammar as contained in MACDONNELL's abridged edition of MAX MÜLLER's Grammar or in any similar book.

B.A. EXAMINATION.

KALIDASA: Sakuntala" (omitting Act 3rd.)

BHAVABHUTI: "Uttararama Charita."

Also the Sanskrit passages in small type found in APTE's Guide to Sanskrit Composition for the purpose of Translation into English.

Grammar as contained in MAX MÜLLER's larger Grammar or in WHITNEY's Sanskrit Grammar, or in KALE's Higher Sanskrit Grammar. (Bombay.)

M.A. EXAMINATION.

(As in 1897.)

PERSIAN AND ARABIC.

(Same as in 1897.)

Excepting the Entrance Examination in Persian for which AMJAD

ALI'S "Selections" will be discontinued, and M. MUHAMMAD SHIBLI'S "Selections in Persian Prose and Poetry" to be substituted.

GREEK, LATIN, AND HEBREW.

(Same as for 1897.)

ENTRANCE AND SCHOOL FINAL-EXAMINATION.

(As in 1897.)

INTERMEDIATE EXAMINATION.

HISTORY, GEOGRAPHY, AND POLITICAL ECONOMY.

GARDINER: "Student's History of England," Vol. II.
(Compulsory for all Students.)
And one of the following courses, *viz*:—

Either (*a*) { DR. SMITH: "Smaller History of Rome."
DR. SMITH: "Smaller History of Greece." }

or (*b*) { R. C. DUTT: "History of Ancient India."
MALLESON: "Akbar."
SETON KARR: "Cornwallis." }

B.A. EXAMINATION.

GREEN: "Short History of the English People," Part II.
FREEMAN: "General Sketch of European History."
STRACHEY: "Hastings and the Rohilla War."
SETON KARR: "Life of Cornwallis."
BRYCE: "The Holy Roman Empire."
MARSHALL: "Economics of Industry."

M.A. EXAMINATION.

MATHEMATICS.

(As for 1897.)

PHYSICAL SCIENCE.

(As in 1897.)

INTERMEDIATE EXAMINATION.

(As in 1897.)

B.Sc. EXAMINATION.

PHYSICS.

The following books are suggested for the guidance of lecturers and students, but are not prescribed.

MAXWELL: "Matter and Motion."
CUMMING; "Theory of Electricity."
GLAZEBROOK AND SHAW; "Practical Physics."
DANIELL: "Principles of Physics."

DESCHANEL: "Natural Philosophy."

MAXWELL: "Theory of Heat."

EVERETT: "Vibratory Motion and Sound."

GANOT: "Natural Philosophy."

GLAZEBROOK: "Heat and Light."

GLAZEBROOK: "Physical Optics."

PRESTON: "Theory of Heat."

PRESTON; "Theory of Light."

S. P. THOMSON: "Electricity and Magnetism."

GRAY: "Absolute Measurements in Electricity and Magnetism."

CHEMISTRY.

The following Syllabus is prescribed :—

A.—Elements, compounds, mixtures, solutions, chemical action, symbols, formulæ, nomenclature, laws of chemical combination, equivalents.

Outlines of elementary crystallography.

The Atomic Theory, Gay Lussac's law, Avogadro's law, Dulong and Petit's law. Determination of Atomic and Molecular weights, Isomorphism, Dimorphism, Isodimorphism, etc. Chemical notation, Valency, Graphic formulæ, Chemical equations, Calculation of formulæ and percentage composition, Compound radicals, Theories of dissociation in gases and liquids. Chemical affinity, Influence of heat and light on chemical affinity, Allotrophy, Isomerism, Electrolysis, Faraday's law, Diffusion, Dialysis, Catalysis, Combustion, Flame, Luminosity, Elements of Thermochemistry, Outlines of spectrum analysis.

Distinction between metals and non-metals, alloys, acids, bases, salts and anhydrides. The constitution of salts. The Periodic Law and the study of the elements on the periodic system.

A fairly complete knowledge of the modes of occurrence, methods of preparation, properties, uses and general characters of the following non-metals, their allotropic modifications, and their principal compounds:—Hydrogen, Chlorine, Fluorine, Bromine, Iodine, Oxygen, Sulphur, Boron, Nitrogen, Phosphorus, Arsenic, Carbon, Silicon and Argon; also Selenium, Tellurium, Gallium, Rubidium, Cæsium, so far as to determine their location in Lothar Meyer's or Mendejeff's tables. A general knowledge of the methods of preparation, properties and uses of the following metals and their principal salts:—Sodium, Potassium, Ammonium, Lithium, Silver, Calcium, Carium, Strontium, Magnesium, Zinc, Copper, Mercury, Badmium, Gold, Lead, Tin, Platinum, Aluminium, Antimony, Bismuth, Chromium, Manganese, Iron, Nickel, Cobalt.

A knowledge of the methods used in the preparation of the more important acids, salts, &c., employed in arts and manufactures; and also of the metallurgy of Iron, Copper, Lead, Silver, Gold, Mercury, and Platinum.

B.—Practical work.

1. Analysis of salts by wet and dry processes. The salts to contain one acid and one base and to be confined to the following metals and acid radicals:—Silver, Mercury, Lead, Copper, Arsenic, Antimony, Bismuth, Tin, Cadmium, Zinc, Iron, Manganese, Aluminium, Chromium, Nickel, Cobalt, Srontium, Barium, Calcium, Mangnesium, Sodium, Potassium, Ammonium, Hydrogen, Chlorides, Iodides, Bromides, Fluorides, Sulphides, Nitrites, Sulphites, Cyanides, Acetates, Oxalates, Phosphates (normal), Chlorates, Sulphates, Nitrates, Carbonates, Borates, Chromates.

2. The preparation of and the recognition of Oxygen, Hydrogen, Nitrogen, Chlorine, Allotropic modifications of Sulphur, Carbon-mon oxide, Carbon-dioxide, Marsh gas, Ammonia, Hydrochloric acid, Nitric acid, Sulphur dioxide, Sulphuretted Hydrogen, Nitrous oxide, Nitric oxide.

Preparation of simple salts involving no special difficulty and use of no special apparatus."

The following books are suggested :—

Newth : " Inorganic Chemistry."

Roscoe and Schorlemmer : " Treatise on Chemistry." Vol. I. and Vol. II. (parts I. and II.)

Watt : " Inorganic Chemistry."

Kolbe ; Inorganic Chemistry.

Jago : " Inorganic Chemistry." (Longman's Advanced Science Manual.)

Roscoe and Lunt : " Chemistry for Beginners."

Tilden : " Chemical Philosophy."

Wurtz ; " Chemical Theory."

Remsen ; " Introduction to the Study of Chemistry."

Thorpe and Muir : " Qualitative Analysis."

Valentin : " Qualitative Analysis."

Fenton : " Notes on Qualitative Analysis."

Turpin : " Practical Inorganic Chemistry."

Jones : " Junior Course of Practical Chemistry."

B.A. EXAMINATION.

(Same as for B. Sc.)

M.A. EXAMINATION.

Physics.

The following text-books are prescribed :—

Maxwell ; "Theory of Heat."

Balfour Stewart . "Treatise on Heat," or the corresponding parts of Preston's "Theory of Heat."

Gray : "Absolute Measurements in Electricity and Magnetism."

Maxwell : "Elementary Electricity."

S. Thomson : "Electricity and Magnetism."

Glazebrook and Shaw : "Practical Physics."

Glazebrook : "Physical Optics," or the corresponding parts of Preston's "Theory of Light."

Ganot : "Physics"—part relating to Sound, *or*

Deschanel : "Physics"—part relating to Sound. (New edition.)

Tyndall : "Sound."

Tait : "Properties of Matter."

Chemistry.

The following text-books are prescribed :—

Roscoe and Schorlemmer ; "Treatise on Chemistry." Vol. I. and Vol. II. (parts I. and II.).

Newth : "Inorganic Chemistry."

Remsen : "Organic Chemistry."

Richter : "Organic Chemistry" (parts in large type).

Wurtz : "History of Chemical Theory."

Wurtz : "Atomic Theory."

Lothar Meyer : "Modern Theories of Chemistry."

Remsen : "Principles of Chemical Theory."

Ostwald : "Outlines of General Chemistry"—(parts on "Solutions" and "Electro-Chemical relations").

Valentin : "Qualitative Analysis."

Thorpe and Muir : "Quantitative Analysis.

Clowes and Coleman : "Quantitative Analysis."

(Reference may be made to Fresenius.)

EDUCATIONAL NOTES.

We quote the following figures from the latest "Register of Graduates" of Wellesley College, which is the largest college for women in America. It sent out last year a class of 120. The first class was graduated in 1879, and this Register contains the names of 1,189 women who have taken their degrees from the institution. Of these only 238 have married, or almost exactly one in five. Of the 261 who have been graduated 10 years or more, 108 are married, or 41 per cent, leaving but 14 per cent of the more recent graduates who have married. Of these 261, however, but a single one was married during the previous year, while 24 of the younger alumni found suitable husbands.

Of the whole number of alumni, only 33 have died, only three being reported for the last year. This does not seem to indicate that higher education for women is very detrimental to their health. Of this number 33, nine were married, and the other twenty-four were enjoying single blessedness.

Sixty-nine of them have taken higher degrees than the Baccalaureate, among whom are fifteen M.D.'s and six Ph.D.'s.

As to residence, 544 are to be found in the six New England States, in one of which, Massachusetts, the College is situated. New York State contains 170, and 421 are scattered through the rest of the United States. Twenty-one are residing in foreign countries. Seven are at present in India, three in the American Madura Mission, two in the American Baptist Telugu Mission, one in the American Arcot Mission, and one in the Bombay Presidency.

* * *

The following strange code of professional ethics was adopted at a recent meeting of the Michigan State Teachers' Association.

1. No superintendent or teacher should become a candidate for a position until it has been definitely decided that the present incumbent shall not remain longer than the present term of contract. When a board of education has taken such action as precludes the present incumbent from being an applicant, or when he has announced that he is not a candidate for re-election, it is proper for another to enter the field as an applicant.

2. No teacher, while under contract should make application for another position without first securing permission from the board of education for a release in case of an election.

3. A superintendent should never make a proposition to a teacher, under contract with another board of education, to leave his position during the

term for which he has contracted, without first securing the consent of the superintendent and the board of education to give the teacher release from his contract.

4. Each member of the teaching profession should exercise a spirit of loyalty, by giving to other teachers the benefit of his influence; by being careful not to criticise either his predecessor or associates harshly, and by speaking a good word for them whenever possible. He should avoid doing whatever might tend to weaken the influence of his fellows with school officers, fellow teachers, parents and pupils, and most emphatically he should never underbid another.

5. In a contest for a position, none but strictly honorable means should be employed by the contestants and their friends. After a board of education has made a choice of a teacher, it should be considered unprofessional for the defeated candidate to criticise the successful one, or to charge him with incompetency or with having resorted to unfair means in securing the position.

* * *

In Aberdeen lady students are to be permitted to study for the medical profession in the ordinary class-rooms under the regular professors, and to go through the hospitals in the regular way.

* * *

The distribution of prizes to the successful students of the Ananda College, Colombo, was held on the 20th May 1896, when Colonel Olcott presided. The College is a Budhist Institution, and has been in existence for 5 years.

* * *

Students of Psychology may be induced to make researches to find out the relation between heat and mental work with the newly introduced clinical thermometer by Mr. E.H. Griffiths, F.R.S., used for taking accurate and instantaneous readings of surface temperatures. The instrument when attached to the temples is able to show accurately the change in temperature caused by solving a hard problem. Psychology would become an accurate science by such quantitative measurements.

* * *

The opening of the new buildings at the Cavendish Laboratory, Cambridge, was celebrated by a *conversazione* when the leading scientific men of the University explained to the inquiring crowds the meaning of the numerous scientific curiosities which were on view. Lectures on the Röntgen Rays and Mr. Learb's photographs of drops of water splashing attracted crowds to them.

* * *

The Cambridge Senate unanimously resolved to appoint a Syndicate to report on the granting of degrees to women. At Oxford, the Congregation refused by a large majority to grant either degrees or diplomas.

Women and Degrees.—In order to realize how completely our two oldest Universities are behind the times, it is only necessary to glance over the Universities of Europe and America. In France, women have been able to get degrees since the Second Empire. Holland, Belgium, Norway, Sweden, and Italy not only offer degrees, but University instruction as well. Denmark gives degrees to women in every faculty but theology, and Switzerland makes no restriction. The Hungarian Universities admit women to the departments of philosophy, medicine, and pharmacy, and seem disposed to open their degrees unreservedly to both sexes, a consummation which will arrive, no doubt, before very long. Austria, though outwardly declaring that she is and always will be bitterly opposed to a University or professional career for women, may be regarded as a mere blusterer, for it is only a short time ago that the Government openly and officially appointed several duly qualified women doctors—they had of course, graduated at foreign Universities—to attend Moslem women in Bosnia and Herzegovina. Turkey can hardly be reckoned as a civilized country, and its standard of education—if it has one—is about on a par with its standard of morality, or, shall we say, its chivalry. As regards Germany, Russia, and Spain, the higher education of women in these countries has already been discussed in these columns. In America all the State Universities are open to women by law, and many of the older and more conservative Universities and colleges are gradually admitting women within their gates. This is the case with Yale, John Hopkins, and Columbia College, New York. At Harvard, a separate building, Radcliffe College, is reserved for lectures to women, which also has the power of bestowing degrees.—*The New Age.*

* * *

"Suggestion as a means of education is an element in the modern system of education and has taken the place of 'hard and fast rules and commands.' We publish elsewhere the opinions of different authorities on the allied subject of "Hypnotism as a means of Education."

* * *

A little boy in the course of his reading lesson came across the word 'widow' and read it as 'window' a more familiar word to him. The teacher corrected him and asked him the difference between 'window' and 'widow.' The boy began "you can see through a window, but—" he stopped when he saw the wonder in his teacher's face. The teacher wanted to impress on the boys the difference in spelling and not that in meaning. This mistake is due to an 'imperfect 'or' misleading' question.

* * *

The twentieth century will begin at 12 midnight, at the commencement of the day which will be known as January 1st, 1901, and not 1900.

The third International Congress of Psychology will take place on August 4th to 7th this year at Munich, under the auspices of the Royal Bavarian University. Four languages may be used—German, French, English and Italian. Women are admitted on equal terms with men.

* * *

The Berlin Professors do not seem to be taking kindly to the presence of ladies in their class rooms. Though ladies are not yet admitted as regular students, but only in virtue of special concession, this authorization meets with much opposition. On a recent occasion, it is said, that a Berlin Professor perceived a lady among his auditors for the first time. He hastily descended from his desk, approached the lady and offering her his hand, politely conducted her to the door.

* * *

The greatest distance on record at which a man's voice has been heard is 18 miles. This occurred in the Grand Canon of the Colorado when a man shouted the name "Bob" at one end, which was heard at the other end 18 miles off,

* * *

The laws of the state of New York prohibit vivisection in schools.

* * *

In New York city the school book must be recovered once a month, per order of the board of health. The board of health has ordered the discontinuance of slates and slate sponges in the interests of health.

* * *

The Teachers' Guild of Great Britain and Ireland has adopted strong resolutions in favour of such an organization of the Educational machinery as shall provide for the substantial and direct representation of the body of teachers on the central council or school board, and on all other central or local bodies dealing with the organization and control of Secondary Education.

* * *

The Teachers' Union of the Department de la Seine has formulated a programme for temperance teaching in the public schools. It advocates the addition of chapters on temperance to existing reading books, the introduction of additional books on hygiene, the provision of a popularly written book on the effects of alcohol, and the more rigid enforcement of the laws dealing with drunkenness and the selling of intoxicating liquor to children unaccompanied by their parents.

* * *

The hundred and fiftieth anniversary of Pestalozzi's birthday took place on the 12th January. A new edition of "Leonard and Gertrude" was brought out in 2 parts. In all the schools in Switzerland speeches were made and appropriate songs were sung while all the pupils received

an illustrated pamphlet dedicated to the memory of the great educational reformer.

* * *

Mr. Henry Holhouse, M.P., before distributing the diplomas, prizes and certificates to the successful students, at the College of Preceptors in March, addressed unusually both the successful and the unsuccessful candidates and gave them a piece of sound advice from which the following is an extract.

"And I would say to those, if there are any in this room, who have not obtained such an amount of success as they might desire, do not be discouraged, but let your temporary failure stimulate you to overcome the difficulties which lie in your path—

Labor improbus omnia vincit.

But I pray you to recollect, whether you be successful or unsucessful in the examination, that examinations are after all but a means, and not an end. An examination is only a test, and often a somewhat fallacious test, of the amount of knowledge acquired and the capacity of reproducing that knowledge at short notice. I trust you will remember that education is not merely an amassing of learning in undigested heaps, not the utilitarian cramming of what I might call the pigeon-holes of the mind—not the acquiring of the tricks of a particular trade. But it is rather, as its name implies, the drawing out and the development of each of those great faculties with which Providence has blessed us—reason, imagination, memory, love of beauty, physical strength and skill, moral sense and religious aspiration. Let us not forget that the acquisition of a language is chiefly valuable as giving us the key to the noblest thoughts to the noblest minds, whether in past ages or in modern times; that the acquisition of a philosophy is the means of gaining light on some of the great problems of the human intellect; that the acquiring of a science gives us an insight into a few of the great mysteries of this physical universe; and that the acquiring of an art enables us to appreciate, and to some humble extent reproduce, some of the beauties of the world around us. Armed with these valuable gifts, which education places at your disposal, each of you, man or woman, may enter into a new world of thought; and however straitened your lot in life, however dull your daily task, you may hope, equipped in this way, to live a happy and an enlightened life, whether as a cultured student of literature, of science, of art, or of philosophy, without detracting to any extent from your value as citizens of this great country."

* * *

A decree has been published by the Austrian Minister of Public Instruction, according to which medical degrees and diplomas obtained by Austrian ladies at foreign Universities may be made valid in Austria under the same conditions as for males. This degree is equivalent to opening medical practice to ladies in Austria, where, up to the present

time, female doctors with other than foreign degrees have been absolutely unrecognised, and unable to pursue medicine as a profession.

* * *

A new Professorship of Indian Law has been instituted at University College, London, and Mr. J. W. Neill, formerly Judicial Commissioner, Central Provinces, has been appointed to the chair.

* * *

The bank of Rothschild and Brothers made a donation of 800*l*. to the University of Paris. It is to be spent on scholarships to enable the students of history and classic literature to travel abroad.

* * *

The admission age of lady-pupils into Girton College, Cambridge, is fixed at 20 and upwards. But in the case of Miss Sarojini Chattapodhyaya, daughter of Dr. A. Chattopodhyaya of Hyderabad, who is only about 17, a special concession seems to have been made.

INDIAN NEWS.

BENGAL.

The degree of Master of Arts was conferred on Professor J. C. Bose, of the Presidency College, Calcutta, by the University of Cambridge in recognition of his various scientific researches.

* * *

All the students of the Calcutta Presidency College and the Hindu and the Hare Schools who are not living with their guardians are required to lodge at the Eden Hindu Hostel.

* * *

The honorary degree of Doctor of Laws has been conferred upon Sir Charles Elliott by the Edinburgh University.

* * *

There is a strong movement set on foot at present in Calcutta to establish a school for Moslem girls, and in general to aid in the spread of education among Muhammadan females.

BOMBAY.

We have been requested by the Director of Public Instruction, Bombay, to notify that the Government has sanctioned the recommendation of the Superintendent of Stationery that the contract with the Universal Rubber Stamp Company for the supply of rubber seals, &c.,

to Government offices for a period of five years from 1st April 1897 be renewed.

* * *

The Director of Public Instruction, under order from Government, has informed the Principals of Colleges and Schools that an expurgated edition of Kuliat-i-Saadi should, in future, be used by their students.

* * *

The Bombay University seems to be in such a flourishing condition that the Government has decided to withdraw the annual grant of Rs. 5,000 which it gave in consequence of the University not being self-supporting. This money is intended to be given to colleges whose financial condition is not satisfactory.

* * *

The first Indian lady who has taken the B.Sc. degree of the Bombay University is Miss Alice Sorabji of Poona.

* * *

Mr. Hari Ganesh Godbole, B.A., acts as Head Master, Ratnagiri High School, during the absence of Mr. D. G. Kelkar.

* * *

Mr. K. D. Naegamvala, M.A., F.C.S., F.I.C., First Master and Lecturer in Optics and Astronomy, College of Science, and Curator of the Takhatsing Observatory, has been granted privilege leave for three months with effect from the 29th of May.

* * *

On the above date, Mr. Naegamvala proceeded to England to join the Expedition of the Royal Society going to Norway to view the total solar eclipse which will take place in August next. Mr. Naegamvala has, moreover, been commissioned to purchase suitable instruments to observe the total solar eclipse of January 1898, which will be visible in India only. A sum of about Rs. 10,000 has been subscribed by well-known citizens of Bombay and Poona and several Native Chiefs to defray the cost.

* * *

The new rules for the Provincial Service Examination have just been published As we pointed out long ago, the standard is sufficiently high, and the subjects sufficiently wide to give full scope to the best of our graduates. There seems to be not a little discontent amongst many undergraduates, that the examination is too hard, and the subjects too wide to give much scope for text-book cramming, so successfully practised for the University examinations.

* * *

The chief practical difficulty seems to be how the candidates are to obtain any tutorial help. The Colleges only teach in accordance with

the University curriculum. The lectures for the various M.A. schools at the Government Colleges seem to be the only available means of instruction. If these latter are resorted to by candidates for the Provincial Service Examination, the work of the Professors will be very largely increased. Instead of as at present having small classes of 2 or 3 pupils in M.A. subjects, at times even no classes at all, they may now expect to have a large influx of pupils, and less of their time will be available for the junior classes, who will once more tend to fall under the care of college fellows.

* * *

Mr. O. V. Miller, M.A. (*Cantab*) Professor of History and Political Economy, at Elphinstone College, Bombay, has been appointed a member of the Standing Committee of the Corporation. He has since the beginning of 1895 sat on the Municipality as one of the two members returned by the University Senate. He is also, we hear, to be appointed by the Corporation a member of their Joint Schools Committee *vice* Dr. Blaney, resigned.

* * *

This latter body who manage the Primary Schools in Bombay consists of eight members, four of whom are appointed by the Governor, and four by the Corporation. Principal Hathornthwaite of the Elphinstone College has long been a Government member of this body. The staff of the Presidency College will thus be strongly represented on our local School Board.

* * *

It is high time that this Bombay School Board made some serious effort to remedy the disgraceful—disgraceful for *urbs prima in Indis*—state of its school-accommodation. That the greater part of our schools should be accommodated in hired, often ill-ventilated and ramshackle buildings is monstrous. The Corporation have voted Rs. 50,000 towards a building fund, the School Board have a balance in hand of 30 to 40,000 Rs., and the Harris Memorial is to be devoted to building primary schools and will yield another 40 or 50,000 Rs. We also hope that the Government of Lord Sandhurst, who has himself, true to his reputation while on the London School Board, taken the greatest personal interest in our Bombay schools, will, at any rate, at the start give a liberal contribution towards the fund.

* * *

If only a start could be made, and one ward accommodated with a suitable primary school, we do not doubt that local rivalry would soon bring about the erection of many others in the less favoured wards.

MADRAS.

An examination will be held in London in June for the selection of seven candidates for appointment as Probationary Assistant Superintendents of Police in India, as follows:—

Madras	...	...	...	... 3
Bengal	...	...	...	... 2
Bombay	...	...	...	... 1
N.-W. Provinces and Oudh		...		... 1

* * *

On the recommendation of the Principal of the Central College, Bangalore, the Government of Mysore has sanctioned 5 scholarships of the value of Rs. 10 each to be awarded to the candidates who have passed the Matriculation or the F.A. Examination in the first class in order of merit without reference to their circumstances.

* * *

The missionaries of Travancore have sent a Memorial to Government protesting against the introduction of certain clauses in the new Educational Rules which are under revision.

* * *

The Director of Public Instruction and the Government are distributing to the Libraries of the various Government Colleges many of the books in their Libraries that have been for years accumulating.

* * *

We commend to the notice of the educational officers and others entrusted with the management of Primary Schools the following sensible remarks made by the President of the Godavery District Board (Mr. Brodie) in his Educational Budget. He says:—

"No possible good can arise from multiplying schools with teachers on salaries ranging from Rs. 5 per mensem, and I should think that the pay should in no case be less than Rs. 7 in these days in this district."

It seems incredible that the services of an educated man can be obtained for such a small salary somewhat less than what the majority of peons in Government offices get. It is quite impossible for the Director of Public Instruction or Government to fix a definite salary, the pay being determined by the law of supply and demand. We only hope that the matter will be righted by fewer men taking the trouble to qualify as Primary School Masters.

* * *

Mr. S. Sathianadhan, Professor of Philosophy in the Presidency College, is shortly to go to England to complete his Law course and take the LL.M. Degree at Cambridge.

M.R.Ry. T. Sankara Row, B.A., Assistant Lecturer, Government College, Kumbakonam, has been appointed Tutor to the Princes of Cochin.

* * *

The Madras Government, on the recommendation of the Director of Public Instruction, has again shown in a practical manner its sympathy with the education of girls in the Madras Presidency. It has recently sanctioned 60 scholarships for girls to enable those who are successful in the Primary Examination to carry on their studies in the higher classes. The conditions of the award of scholarships are as follows :—

(1) The candidate shall ordinarily have been a pupil at the time of the examination in a recognized school or schools.

(2) Except in the case of widows, the age of the candidate shall not have exceeded 14 years at the date of the examination.

(3) The candidate's parent or guardian shall undertake that she shall prosecute her studies in a recognised Lower Secondary school in British territory until after the annual standard examination for which she is reading.

(4) Scholarships shall not be awarded unless at least two pupils are reading in the form or standard to which the candidate belongs.

(5) Not more than three new scholarships shall be awarded annually in any school.

(6) The scholarships shall be renewed and increased in the second and third years on the results of the Fifth and the Sixth Standard examination, respectively.

(7) Should the number of candidates exceed the number of scholarships, preference will be given to the pupils who obtained the highest number of marks in the Primary Examination.

* * *

At the prize distribution of the St. Thomé College, Mailapur, last month, His Lordship the Bishop of Dacca made the following remarks as regards attendance and endowments. He said :—

"I suppose it was a hint on the part of the faculty of the College to parents that the attendance should be more regular. Nothing should be more deeply impressed upon the minds of parents, and every faculty of every school ought to use whatever opportunity presents itself in order to instil this into the minds of parents. They ought to see the necessity of uninterrupted attendance at school. The development of children's minds is the same as that of a structure or building. You must begin at the very bottom, and lay one stone upon another, and so continue until you have a building of mental culture. Parents and those responsible for children certainly do great injury to their children and to themselves, if they make themselves the cause of their sons lagging behind in class.

"To found scholarships is one of the noblest actions that man can do if you only look at it in the right way. If you take a list of the really great men in the world, they were not only great in their own nation, but men who made a name through all nations; if you look at that list you will find that the great contingent thereof were men not born of rich parents, but whose parents had not the means of giving them a liberal education. Most of them owe their education to some better situated relative or to some kind friend under whose observation they had fallen. Among the many intelligent faces that we see here, there is no telling at the present time what may be hidden in that little boy that plays around us. It is a little being of untold and incomprehensible possibility for good or for evil."

* * *

Government has given the Director of Public Instruction power to appoint as Postmasters Government teachers drawing small salaries, and employed in schools in rural villages.

* * *

The Government Museum and the Connemara Public Library will be kept open on Sundays for the public, and will be closed instead on Fridays.

* * *

The Hon'ble Dr. Duncan with a portion of his office establishment is paying a short visit to the schools in the Neilgherries.

* * *

On the 8th May 1896, the Hon'ble Dr. Duncan unveiled a portrait of the late Mr. Grigg, subscribed for by the office staff of the Director of Public Instruction. Mr. Grigg was Director of Public Instruction for more than 10 years, and this token of regard coming from those immediately under him is another proof of the respect in which he was held.

* * *

The rooms of the Teachers' Guild at the Christian College and at the Royapettah College kindly lent by the Managers of these Institutions have been closed for two months in consequence of the summer vacation.

* * *

There were more than the usual number of students detected at cheating in the various University Examinations held in December and January last. The Syndicate have dealt severely with the culprits, having debarred them from appearing for any University Examination for periods ranging from one to four years.

* * *

The latest attempt at fraud by Ramachendra Rau is somewhat peculiar, because the means of deceiving are so simple, and the difficulty

of detection so great. According to the sworn information of Mr. Coóper-Oakley, the Registrar of the University, it appears that Ramachendra Rau applied for a copy of the F.A. certificate, the original having been lost, and produced a letter of identification from Mr. Sama Rau, District Munsiff. The certificate was given to him, and he used it in obtaining employment under the Collectors of Tinnevelly and the Neilgherries. It was afterwards discovered that the one who had passed the F.A. Examination by the name of Ramachendra Rau died sometime ago, and that there was no such District Munsiff as Sama Rau. In the meantime, Ramachendra Rau has absconded, and a non-bailable warrant is issued against him.

* * *

The following extract from the Annual Report on the working of the Reformatory School, Chingleput, during the past year is published, as it indicates the excellent work the school has been doing during the 8 years it has been in existence.

"Eleven pupils passed for primary examination certificates against 18 in the previous year.

"As regards Technical education, 9 pupils passed the Government Elementary Technical examinations in the various industries.

"In the matter of physical education, systematic instruction in gymnastics and drill in which all the pupils participate continued to be given, every pupil receiving instruction twice a week for half an hour each time. The physical training drill continued to be exercised with great interest, and this drill is considered to be well a apted for setting up the pupils. An improvement effected during the year in connection with this drill is that the pupils now go through all the exercises accompanied with songs. Another improvement is the introduction of Bar-bell exercises which are also performed with songs.

"As regards the conduct of past pupils, the school has to account for 155 of them. Twelve of these have unfortunately found their way back to jails. Of the remainder, favorable reports have been received of 116. The percentage of good reports is 75, which compares favourably with that of Alipore, the oldest Reformatory in India, where in 1894 the percentage was 73. Of the discharged pupils, 16 pupils took to the trades they were taught, and in this respect also the school compares favourably with the other Reformatory schools.

"As regards the occupation of certain discharged pupils, the following particulars are interesting :—

"Five have been trained as Gymnastic instructors, and all of them are employed.

"Ten have enlisted in Madras Regimentals. This is the only Reformatory School in India which has contributed recruits to the Indian Army, and in this respect we have followed the example of the Reformatory Schools in the United Kingdom."

The Assistant Inspector of Schools in his review remarks that "The institution is under very efficient management, and the results of the examination are very creditable to those concerned."

* * *

Mr. Whitley, formerly Professor of Engineering, Madras Civil Engineering College, and for the last five years, tutor to His Highness, the young Maharaja of Mysore, will shortly proceed home on furlough.

* * *

The examination for Teachers' Certificates of the Secondary and Primary grades for the written test in Mysore was held on the 1st June 1896, and the following days.

* * *

M. R. Ry. Timmaraju Venkatasiva Rau Garu, a rich landed proprietor of Chicacole, (Ganjam District) has given a munificient sum of Rs. 12,000 for the purpose of founding four scholarships of the aggregate amount of Rs. 50 a month, for the encouragement of poor students in the Northern Circars. The Government has accepted the generous offer with thanks, and have sanctioned a moiety of grant (Rs. 6,000) from provincial funds.

* * *

We have been requested by Miss A. Arnold, Superintendent of the Presidency Training Institution for Mistresses, to publish the following letter.

"Will you allow me to say a few words concerning a remark which appeared in your last issue in connection with the Presidency Training School for Mistresses? It is there stated that there seems to be difficulty in finding work for the students after training, but during my experience of the school, which extends over nearly four years, I have found no such difficulty as that referred to. It is true that there is often delay in procuring employment for the students. This is owing to the fact that, while the examination for Teachers' Certificates is held in November, the results are not known until March. The Practical Test examination cannot be passed until April, and, therefore, the shortest time in which a student can be fully qualified for her profession is four months after the completion of her training.

"Numerous applications for teachers are received from Managers in the months of December and January. They require teachers holding trained teachers' certificates, and as they seldom agree to employ a

teacher on the chance of her being fully qualified in four months time, nothing can be done with respect to these applications; the Managers fill up the posts otherwise; the teachers are in a position to fulfil the necessary conditions only a week or two before the summer vacation begins, and no work is obtainable until the next term at the earliest.

"It further happens that the work that is offered is refused by the students for various reasons—their parents object to their going far, they cannot go alone, the salary offered will not cover the expenses of two, they want a post in Madras and other similar excuses.

"It very rarely happens that the good teacher or the average teacher is without work—except from her own choice—for more than six months after the completion of her training. As for the poor teacher who cannot honestly be recommended, and whom years of training would make nothing of, for, in my opinion, to a very large extent Mag istra 'nascitive non fit,' she is inspected by manager after manager, and is finally given work for the sake of the grant she brings to the school.

"If the aggregate of offers of work from Managers be compared with the aggregate of teachers wanting work, it will be found that the demand for teachers is far in excess of the supply; the difficulty lies in the want of adjustment between the time of the demand and the time of the supply."

PUNJAB.

The Lahore Teachers' Association, an Institution similar to the Madras Teachers' Guild, has taken up the question of the formation of a Provident Fund for teachers in the Punjab, and has sent a memorial to to the Lieutenant-Governor on the subject.

* * *

Mr. Haden Cope, Inspector of European Schools, Punjab, is now at Simla, engaged in framing the new Code of Regulations for European Schools, based on the draft framed by Sir A. Croft's Committee, which assembled at Calcutta in February 1895. Mr. Cope was a member of that Committee, and his selection for this important work is most suitable. The Director of Public Instruction being at Simla for the season, the compilation of the Code should soon be completed. The revised regulations have given much satisfaction, and can hardly fail to benefit the European community very appreciably.

* * *

The Annual Report of the Punjab Text-Book Committee for 1895-96 has appeared punctually, and makes an interesting publication. It is

not difficult to form a pretty accurate estimate of the amount of work done by the Committee from the following facts, 58 text-books and other works were completed or in course of preparation under the direction, or with the approval of, the Committee; 69 books were considered and approved; and 197 others were considered but of which no special use could be made. Some of the works which were in course of preparation under the Committee's direction are of considerable importance; "The Punjab Library Series," for instance. This Series is designed to afford wholesome and instructive reading to the people, five translations of standard works being published annually. Tullock's *Prince Consort* and Sir Robert Ball's *Starland* have been done, and Malleson's *Akbar*, Arnold's *Seas and Lands* and Swinton's *Outlines of the History of the World* are now to be undertaken.

* * *

Thirty members constitute the Committee, the Director of Public Instruction being *ex-officio* President. Half are nominated by Government and half by the Punjab University, and somewhat under half the members are non-officials. Then the General Committee is split up into eight sub-committees representing the various departments of instruction. The Committee's receipts amounted to Rs 9,269-10-11, and the disbursements to Rs. 9,056-3-6, and there is now a respectable balance at credit of Rs. 6,178-2-0. Mr. J. Campbell Oman, Professor of the Lahore Government College, is the Secretary, and Mr. Kunj Behari Thapur, the Assistant Secretary; and altogether it would be difficult to pick out a more useful institution in the Province.

* * *

Sir William Henry Rattigan, late Vice-Chancellor of the Punjab University, at present in England, has sent out the Silver Cricket Shield offered by him for competition at the University Athletic Sports Tournament to be held next winter.

* * *

In reply to an enquiry by the Punjab University as to the date on which it is proposed to hold the first Clerical and Commercial Examination, the Director of Public Instruction has informed the Registrar that the course prescribed for this test has not yet been adopted in any of the schools in the Province. Inspectors of Schools have, however, been requested to urge the introduction of the course into some of the High Schools of their circles, and when effect has been given to this, a further communication will be made to the Registrar as to when the first examination should be held.

* * *

With reference to recent orders received from the Secretary of

State regarding the scope of Schools of Art in India, Sir Dennis Fitzpatrick has now the question of the constitution of the Mayo School of Art, Lahore, under his consideration. Public (Provincial) funds will still be devoted to the maintenance of this institution, and it is difficult to see what change can be made in its working or scope.

* * *

It appears that it was at the suggestion of the Punjab Government that the Committee appointed in February 1895 to revise the Code of Regulations for European Schools in Bengal (whose proceedings have just been published) considered the question of the compulsory education of poor European and Eurasian children. The Committee rejected the proposal, and the Government of India has concurred in the decision.

* * *

In the last Female Teachers' Certificate Examinations held in April and May 1896, there were seven candidates for the senior vernacular certificate examination, and two for the junior vernacular certificate examination.

In the Senior Vernacular examination, three girls presented themselves from the Municipal Board Girls' School, Amritsar, of whom one has failed finally, and the two others failed only in needle work and knitting, in which subjects only they can re-appear next year. They will, however, recieve senior second grade certificates, which will make them eligible for an assistant's place in a Middle School for girls. The Christian Girl's School at Amritsar sent up three, of whom two have failed finally, and one passed in the second division, gaining a senior first grade certificate, making her eligible for the headmistressship of a Middle School for girls. The one candidate from the A.P. Mission Girl's School, Gujranwala, failed finally.

In the Junior Vernacular Certificate Examination, there were only two candidates from the Alexandra Girl's School, Amritsar; one of these failed finally, and one failed in Arithmetic only, in which subject only she will be allowed to re-appear next year, She will, however, be awarded a junior second grade certificate, making her eligible for an assistant mistress' place in an Upper Primary School for girls or the headmistress' place in a Lower Primary School for girls.

* * *

The special attention of Headmasters and Managers of all High Schools is drawn to two improtant changes in the Entrance Examination (Arts Faculty) of the Punjab University, which will come into operation from the examination of 1897. These changes are—(1) that candidates will be required to secure in the English paper *viz.*, composition and

translation of passages from vernacular into English, a minimum of 33 per cent of the marks allotted to that paper; and (2) that all answers in the papers dealing with oriental classical languages and vernaculars will have to be written in English, except in the case of translation, which will be from and into the vernacular of the candidate.

* * *

The Government has recently sanctioned the B.A. scholarships being held in the Daya Nand Anglo-Vedic College at Lahore. This concession is well deserved, as there is no doubt that this College is doing much useful and efficient work. The institution is one entirely independent of Government with respect to grants-in-aid, and in spite of this, is one of the most flourishing Colleges in the Punjab, the management and instruction being all that could be desired.

* * *

The distribution of prizes of the students of the Daya Nand Anglo-Vedic College and School came off a few days ago, Rai Bahadur Sagar Chand, B.A., Inspector of Schools, Rawulpindi Circle (who, by the way, has sent in his papers to retire within the next few months) presiding. The Chairman, after distributing the prizes, made a short speech of advice to the students and congratulation to the College on the good work it has done and is doing.

REVIEWS OF BOOKS.

De Quincey's 'Confessions of an English Opium-Eater. With Introduction and Notes, by Mark Hunter, B.A., (*Oxon.*), Principal of the Coimbatore College. Bombay: *George Bell and Sons*, 1896.

This edition of the later or fallen version of the Confessions of an Opium-Eater has been published with an admirable introduction and with very clear notes by Mr. Hunter. The work has been done so well that we have little to say, and can only recommend the volume to all students. Of course, in recommending this book, we hope that all students will understand that it is recommended because of its literary merit, and that no student will be induced by a perusal of this book to experiment upon himself by taking opium. In palliation of De Quincey's conduct, it must be remembered that he was driven to take opium by a most painful disease of the digestive organs. Those who have not such an excuse will do well to leave opium alone.

The only one of Mr. Hunter's notes which we consider to be inaccurate is the note at page 276 upon De Quincey's remark that his schoolmaster, although in deacon's orders in the Church of England, was not a clergyman. Mr. Hunter says that this is right. We think that it is quite wrong. Any student who received the tonsure was a clerk, *clericus*, entitled to benefit of clergy, and he could be presented to a benefice on condition of proceeding to take orders. A deacon is in Holy orders, and all legal disabilities attach to him. His orders are indelible in ecclesiastical law. He cannot sit in the House of Commons. The historian J. A. Froude was in deacon's orders and disclaimed his orders under the Act of Parliament of 1870. A deacon of the Anglican Church is certainly a clergyman.

Other notes which might have been expressed differently are the note on page 262 about St. Thomas Aquinas, and the note on page 264 on casuistry. Students will receive an inadequate idea of the great intellectual powers of the Angelic Doctor, and casuistry is a necessary and harmless method of teaching. The word denotes teaching by concrete instances to supplement abstract principles. The illustrations of sections in the Penal Code and other Indian laws are casuistry. The Hard Cases in each week's number of *Vanity Fair* are casuistry.

THE CHILD'S FIRST BOOK OF GEOGRAPHY. London: *Longmans Green & Co.*

This handsome little book is the first of a series of Geographies in five parts. It is beautifully printed, and the important names and the chief heads are prominently placed in bold type. The speciality of the book is the illustrations and the maps of which there are fifty-two in number. Relief maps which help so well to give the children a clear idea of the surface are furnished for all the continents and for nearly all the important countries. The book contains about one hundred and sixty pages, of which nearly half is devoted to the Geography of Europe; and of this half, the treatment of British Isles occupy, as it ought to, about forty pages.

The object of this first book is to furnish the children with the important facts only, leaving the details to be supplied in the subsequent volumes, and the books have succeeded very well in carrying out this aim. The introductory portion to the study of the continents, consisting of the most essential facts relating to the world, the earth, the land, clouds, rivers and lakes, parts of the land and the sea is the most attractive part of this book, and the clear and exact illustrations enhance the value of this portion.

The style throughout is simple, the order of treatment natural, and examination questions are given at the end of each section. And we have no hesitation in recommending this book.

SCOTT'S 'MARMION'. Edited with Introduction, Notes and Paraphrase, by T. J. Williams, B.A., (*Oxon.*), Principal and Professor of English Literature, &c., Guzerat College.

In this publication, Professor Williams gives us 230 pages of notes and paraphrase to elucidate a poem so simple as Scott's 'Marmion.' The volume is meant to "assist Indian students who are reading 'Marmion' for the Previous Examination of the Bombay University," which examination corresponds, we believe, to our First Examination in Arts. This assistance is divided into two parts, (1) notes of 90 pages and (2) paraphrase of 140 pages. The former consist mainly of archaic expressions and words, and the space devoted to this purpose might have been considerably curtailed, if the annotator had simply given an alphabetical glossary instead of embodying these in the notes. Nor are we convinced of the necessity for the paraphrase of the whole poem, unless it be to add to the size of the book. Scott's style is never difficult nor terse; and the students for whom the 'notes' are intended may very well be left to their own resources in the matter of paraphrasing the poem. The annotator might have, if he thought necessary, given the paraphrase of a few selected passages to serve as a model to the students. And we are not sure that his performance, apart from the absence of any need for it, is of any value. The paraphrase is not only "loose," as the annotator admits it to be, but is a little too "loose," and consists mostly of a mere substitution of words, rather than of a thorough recasting of the passages paraphrased. Nor are we satisfied that the annotator is particularly accurate in his rendering or careful with his own style. The passage, "When red hath set the beamless sun through heavy vapours dark and dun," is rendered into "When the winter's sun hath set, appearing like a red ball through the dark evening mists", the simile of the "red ball" may be appropriate, but it is not in the original. Again in the sentence "He often looks back, while shining, in the distance, his cottage window, &c.," it cannot be that the object that shines "is the cottage window." It is unnecessary to multiply instances. We are unable, on the whole, to accept either the principles of annotation that guide Professor Williams, or the result of his labours.

JOHNSON'S 'LIFE OF MILTON.' With Introduction and Notes, by W. H. Sharp, M.A., Professor of Logic and Moral Philosophy, Eliphinstone College.

If the name and position of the annotator of a book are guarantees that the notes would be valuable we have them in the case of the publications under review. The notes and criticisms on Johnson's 'Life of Milton' by Professor Sharp of the Eliphinstone College are no doubt accurate and scholarly. But we cannot say exactly fon whom they are intended. No word is too trivial but finds a place in the notes; such words as *buffoon, withal, incidental, fable, fortune, rudiments, happy, wanted*, &c., receive Professor Sharp's attention, even when there is nothing peculiar in their usage. And he combines with this, criticisms on diction, imagery, the suitability of allusions and figures &c., in the poetry of Milton, which cannot possibly be means for students ignorant of the meaning of the most ordinary words in the English language. The notes cover twice as much space as the original, and if due allowance is made for the difference in the type between the original and the notes, the latter must be estimated to be thrice the former in quantity. This is a fulness of annotation which will prove, in our opinion, a burden to the student and not a help; and it is a fulness that is also quite consistent with the omission of help where it may be essential. When, for instance, Johnson criticises the political notions of Milton, and says that "it is surely very shallow policy that supposes money to be the chief good" and proceeds to lay down the dictum that "the expense of a court is only a particular kind of traffic by which money is circulated, without any national impoverishment," we may surely expect Professor Sharp to say something on the fallacy contained in the statement. But we find no remark on this and on many other passages of a similar nature. A person of Professor Sharp's attainments is expected to serve as a model when he condescends to the work of annotation; but we regret that he simply follows the bad of the worst sinner of the class.

METRICAL TRANSLATIONS, ADAPTATIONS, &C., IN SANSKRIT.
By Mr. T. Sankara Raw, B.A.

We are glad to find in Mr. Sankara Row an earnest student of Sanskrit. We believe there are not many like him engaged in that kind of close and affectionate study of Sanskrit, who will not rest satisfied until an attempt has been made to put one's progress in it to an objective test, so to speak, in the shape of actual composition. There is no reason, however, why we should regret the absence of many like

our author, for there are surely a hundred occupations that can be readily named more bracing to the mind and more useful on the whole than attempts at original composition in a long-dead language. Nor are we prepared to advise the young men at college to whom Mr. Sankara Row specially recommends his book, to imitate him, unless indeed any among them have already felt a call and made up their mind to devote themselves to the study of the language of their gods. To such, of course, Mr. Sankaro Row's book must be highly interesting and useful.

Besides translations of some well-known gems of English poetry, the book before us contains two pieces "In Memoriam I." and "In Memoriam II." the former lamenting the death of the late Professor Ranganatha Mudaliar, the latter that of the Author's uncle's wife. This last makes reference to a number of details concerning the family relations of Dewan Bahadur T. Venkasami Row, the beloved husband, which are no doubt of paramount importance to him, but neither sufficiently well-known nor of much consequence to the general public. We venture to think therefore that the author would have done well to have suppressed it. It being there, however, we personally should be sorry to lose it, for it and the other "*In Memoriam*" form in our opinion the best portion of Sankara Row's work. In them is seen some of the elegance of language, the freedom of movement, and the clearness of meaning that charm us in the old classics. Of the ideas and sentiments there is not much to say: a few lines, however, where the thought rises somewhat above the average, may be picked out from the rest.

पश्यामीव पुरः क्षणं हतविधे विस्मृत्य दुश्चेष्टितं
स्मृत्वा याति यथास्थितं पुनरहो मोहं निराशं मनः ॥

Which readily recalls Cowper's lines.

When I think of my own native land,
In a moment I seem to be there;
But alas! recollection at hand
Soon hurries me back to despair.

By the way these very lines are rendered elsewhere by the author, but not so happily. Here is a thought which one has often heard, but which will be brought home with none the less freshness to every man that has felt the edge of grief:

जीवन्त्यां विदितस्त्वयीदृगितिमे न प्रेमसारोमहान्
नष्टस्यैव महार्हता जगति वा संभाव्यते देहिना ॥

Again :—

प्रत्यासन्नमृतिर्न मय्यकथयद्वा कामनां हृद्गतां
नूनं पश्चिमबुद्धयः क्षितिसुरा हन्ताद्यकिंचिन्त्यनाम् ॥

We cannot congratulate Mr. Sankara Row so heartily on his translations. The pieces that are in our opinion done best are "The Jolly Beggar" and "The Orphan Boy." "Goldsmith's Hermit" and "Cowper's Alexander Selkirk" have perhaps suffered most at the author's hands. The whole of the apostrophe to the winds in the latter, especially the last part thereof

> "O tell me I yet have a friend,
> Though a friend I am never to see."

is very feebly done. Instances where the translation has lost its force by over-literalness may be seen in

उत्तार्योन भवाब्धिशेषसरणिर्गम्यामयैकाकिना ।

and in

पक्षौद्वौ समरोक्ष्यतां यदिचमे तार्क्ष्योपमं पार्श्वयोः ।

But enough of fault-finding. We have derived much pleasure from the booklet under review, and, before taking leave of the author, would convey our sincere thanks to him, and express the hope that "this little volume will prove specially useful to College students, and foster in them a taste for Sanskrit study."

THE SANSKRIT JOURNAL. Edited by P. K. Swami Sastri, and B. V. Kamesvara Aiyar, of Pudukota, January, February and March.

The name of this Journal may excite greater expectations than it can satisfy. It is not devoted to the discussion of the innumerable questions of greater or less interest concerning ancient Hindu life and Scriptures such as might engage the attention of the now rapidly-growing class of labourers in the field of Indian lore. Its scope is much less ambitious, though not without originality. As it is announced in the preface, each number is to consist of three parts, the first being exclusively in English, the second exclusively in Sanskrit, and the third in English and Sanskrit. The English portion has two articles, one "explaining, and, where possible, examining the researches and conclusions" of Western scholars, the other giving a rational explanation and vindication of Hindu religion and ritual. The February number has an article on "The Age of the Vedas" which forcibly calls attention to the traditional Hindu method of chronology hitherto treated with undeserved

contempt by orientalists in their attempts at fixing dates in the history of Indian literature. The articles on Sandhya Vandanam will be read with interest as they interpret, to most people for the first time, the mantrams heretofore remembered and recited by simple rote. We doubt, however, whether the attempt to examine the nature of the sanctions that Sandhya Vandanam possesses, is altogether a success. We rather fear it will result in disappointment to several and disillusionment to many. No stress is at all laid upon the one claim made on behalf of it by orthodoxy,—the intrinsic efficacy of the mantrams *as such*, as so many collocations of words and svarams. When this supreme claim is yielded to the enemy, little is left but the bias of patriotism, the interest attaching to antiquity, and the literary charm of the language itself,—all which are too much of the nature of the sentiments to appeal to, or be binding on, all equally.

The Sanskrit portion, though intended to be in prose, admits verses on various topics of unequal interest, the story of Rama, the praise of good words, the description of a good wife, &c. This portion is announced to have three aims, *viz.*, to create a good, simple, idiomatic prose, to enable students to speak and write Sanskrit with fluency and accuracy, and to instruct pundits and munshis in useful branches of knowledge, history, geography, elementary science, &c. We confess we cannot admire any one of these three aims. The formation of good prose in Sanskrit seems to us to be an impossible task ; for none such can be created unless it be serviceable in practical life, and we do not see any end in modern Indian life that Sanskrit prose can subserve. The ability to speak and write Sanskrit well may be a highly striking accomplishment, but we will not recommend such occupations to busy men or ever regret the present dearth of Sanskrit oratory. The third aim, however, that of reaching some scraps of useful knowledge to pundits, is more desirable, though to our mind, not much more possible ; for we have a fear that this class of people is about the last that will profit by journalistic instruction. The two noteworthy articles are " The Glory of Japan " and " The Necessity of Sanskrit Study." The latter is written with much spirit, though not with equal judgment, in one or two places it is unnecessarily harsh in tone, and its conclusion will not command general acceptance.

In the last portion of the journal is published in bits, far too small, " An Introduction to the Study of Sanskrit," evidently the title of a future book on Sanskrit Grammar. The remainder consists of annotations on Sanskrit classics, generally excellent, but quite too scrappy to be read with profit in the different issues, until they should be put together in one volume. We have a notion—is it only a weakness ?—that

questions and answers are about the most shabby and irritating form that can be given to annotations.

We have long thought that one of the most serious defects of Sanskrit literature, one that to a large extent accounts for the grossness, artificiality, and puerility of later Sanskrit poetry, is the total lack of sound literary criticism, such as has kept watch over, and in part guided, English literature at different stages of its growth. And if at this day in our colleges the average pundit in spite of his erudition is not generally listened to with respect, it is mainly because, while learnedly expounding the meaning of his author, double and triple, and subtly elaborating trivialities of grammar, he is absolutely unable to form, or enable his pupils to form, a judicious estimate of the work he is teaching as a work of art, to point out the peculiar excellences and deficiencies of its author, to give him his place among the poets of the land, to show how each work was conceived and executed, to show how this idea is unnatural, and how that sentence could have been improved, &c. Such criticism it is by no means easy to create off-hand, the very basis for it, well-understood and generally acknowledged canons and standards of criticism, being entirely wanting. These must hereafter be slowly evolved by a process of discussion and elimination among those who combine the erudition of the East with the culture of the West; and this evolution of general canons and standards of criticism can come about only after many authors have been carefully studied and tentatively criticised in detail. We would recommend this task to the editors of the Sanskirt journal, and we are the more hopeful they will undertake it, because thereby they will enlarge the scope of their publication, and lift it above the level of school and college requirements to which, we are constrained to remark, it is at present written down.

We are not, however, without appreciating in a spirit of thankfulness the importance of this first venture in the field of Sanskrit journalism, and we hope that its conductors, having the field all to themselves, will continue to hold it long and honourably.

MATHEMATICS.

Solutions of Questions.

62. (*V. Ramaswami Aiyar, M. A.*) If P_r, the sum of the products taken r at a time of n positive quantities, has a given value, prove that $P_1, P_2, P_3 \ldots\ldots\ldots\ldots P_{r-1}$ have their *least* possible values and $P_{r+1}, P_{r+2}, \ldots\ldots P_n$ have their *greatest* possible values, when the n quantities are equal to one another.

Solution by M. T. Narain Aiyengar, M.A.

(*Lemma.*) It is proved by Induction that $\frac{P_2}{P_1} > \frac{P_3}{P_2} > \frac{P_4}{P_3} \ldots\ldots$

For $P_r = aP'_{r-1} + P'_r$, (where a is one of the given quantities and the accented letters refer to the products of the remaining quantities.)

$$\therefore \frac{P_r}{P_{r-1}} > \frac{P_{r+1}}{P_r}, \text{ if } \frac{aP^1{}_{r-1}+P^1{}_r}{aP^1{}_{r-2}+P^1{}_{r-1}} > \frac{aP^1{}_r+P^1{}_{r+1}}{aP^1{}_{r-1}+P^1{}_r}$$

which is obviously the case if $\frac{P^1{}_{r-1}}{P^1{}_{r-2}} > \frac{P^1{}_r}{P^1{}_{r-1}} > \frac{P^1{}_{r+1}}{P^1{}_r}$;

that is, if the Lemma is true for n letters, it is true for $n+1$ letters and in particular we know that $\frac{a+b}{1} > \frac{ab}{a+b}$;

$$\therefore \frac{a+b+c}{1} > \frac{ab+ac+bc}{a+b+c} > \frac{abc}{ab+ac+bc}\text{; and so on.}$$

Now let a and b be two of the n given quantities,

then $P_r = ab\,Q_{r-2} + (a+b)\,Q_{r-1} + Q_r$, where the Q's refer to the remaining $(n-2)$ quantities.

Suppose instead of a and b we write λ, so that P_r remains unchanged; then $ab.Q_{r-2} + (a+b)\,Q_{r-1} + Q_r = \lambda^2 Q_{r-2} + 2\lambda Q_{r-1} + Q_r$

(*i.e.*) $(\lambda^2 - ab)Q_{r-2} = (a+b-2\lambda)Q_{r-1}$;

$\therefore\ (a+b) > 2\lambda$ and $\lambda^2 > ab$, since $(a+b)^2 > 4ab$.

Thus, we easily see that P_{r-1} is diminished by the substitution of λ for a and b.

For $ab\,Q_{r-3} + (a+b)Q_{r-2} + Q_{r-1} > \lambda^2 Q_{r-3} + 2\lambda\,Q_{r-2} + Q_{r-1}$

if $(a+b-2\lambda).\ Q_{r-2} > (\lambda^2 - ab)\,Q_{r-3}$,

that is, if $\frac{Q_{r-2}}{Q_{r-1}} > \frac{Q_{r-3}}{Q_{r-2}}$, $\left[\because\ (a+b-2\lambda)Q_{r-1} = (\lambda^2 - ab)Q_{r-2}\right]$

$\therefore$ if $\frac{Q_{r-2}}{Q_{r-3}} > \frac{Q_{r-1}}{Q_{r-2}}$ which is proved above.—(*Lemma.*)

Hence the proposition, the other cases following similarly.

107. (*B. N. Cama.*) PQR is a tangent triangle of a parabola and r its circum-radius. Prove geometrically that $4r^2$. AS=SP.SQ.SR.

Solution by R. Ramachendra Row, B.A.

S is on the circumference of circle PQR; draw SD, SE, SF perpendicular to QR, RP and PQ; then D, E, F, are collinear and the line DEF (the pedal line) is the tangent at the vertex A.

SDQF is a quadrilateral incriptible in a circle whose diameter is SQ.

$\therefore$ SD.SF=SQ.SA (*Euclid* VI . C.)

SP.SQ=$2r$.SF (*Euclid* VI . G.)

SQ.SR=$2r$.SD (*Euclid* VI . C.)

Multiplying SP.SQ.SR=$4r^2$. SA.

108. (*T. Rangasami Aiyangar, B. A.*) A man 6 feet high just sees his whole figure in a mirror placed at a distance of $2\frac{1}{2}$ feet from his foot and inclined at an angle of $60°$ to the horizon. Find the length of the mirror.

Solution by R. Ramachendra Row, B. A., and P. V. Roberts.

Let AB be the man and CD the mirror, then BD must be at right angles to CD. Projecting the broken line BAC on CD, we have

$$CD = AB \cos 30° \pm AC \cos 60°,$$

the upper or lower sign being taken according as the mirror is inclined towards the man or away from him.

$\therefore \quad CD = 3\sqrt{3} \pm \frac{5}{4} = 5{\cdot}196 \pm 1{\cdot}250 = 6{\cdot}446$ or $3{\cdot}946$ feet.

109. (*C. K. Venkatrama Aiyar.*) Two circles whose radii are r and r_1, cut one another at an angle θ. Shew that the length of the common chord is $2\,rr_1 \sin\theta\,(r^2 + 2rr_1 \operatorname{Cos}\theta + r_1^2)^{-\frac{1}{2}}$.

Solution by V. Raghunatha Row, B.A., and others.

Let C, D be the centres and P a point of intersection.

Area of triangle $CPD = \frac{1}{2} rr_1 \sin\theta$

and $CD^2 = r^2 + 2rr_1 \cos\theta + r_1^2$

$\therefore$ Chord = twice altitude of triangle $CPD = \dfrac{4 \text{ triangle } CPD}{CD}$

$= 2rr_1 \sin\theta\,(r^2 + 2rr_1 \cos\theta + r_1^2)^{-\frac{1}{2}}$.

110. (*K. Ganapatisubban, B.A.*) The sum of any n roots of the equation $x^{2n} + p_1 x^{2n-1} + p_2 x^{2n-2} + \ldots\ldots = 0$ is multiplied by the sum of the remaining n roots. Shew that the sum of all such products is

$$\frac{\underline{|2n-2}}{\underline{|n-1}\ \underline{|n-1}}\, p_2$$

(1.) *Solution by A. Radhakrishna Aiyar, B. A.*

The number of terms in each product is n^2.

Therefore the total number of terms in the sum of all such products is $n^2 . \frac{1}{2} \cdot {}^{2n}C_n = \dfrac{n^2 . \underline{|2n}}{2\underline{|n}\ \underline{|n}}$.

But as this sum must contain each term in $\Sigma\alpha\beta$ the same number of times, and $\Sigma\alpha\beta$ contains $\dfrac{2n\,(2n-1)}{1{\cdot}2}$ terms, the sum must be a product of $\Sigma\alpha\beta$ by $\dfrac{n^2\ \underline{|2n}}{2\underline{|n}\ \underline{|n}} \Big/ \dfrac{2n\,(2n-1)}{1{\cdot}2}$ or $\dfrac{\underline{|2n-2}}{\underline{|n-1}\ \underline{|n-1}}$.

Also $\Sigma\alpha\beta = p_2$.

Therefore the required sum $= \dfrac{\underline{|2n-2}}{\underline{|n-1}\ \underline{|n-1}} \cdot p_2$.

(2.) *Solution by R. Ramachendra Row, B.A.*

The sum is clearly a symmetrical homogenous function of the second degree and does not involve squares; it is therefore a multiple of p_2. To determine how often a particular product $\alpha\beta$ occurs, it is necessary that α should occur in an n-group and β should not; out of $2n$ letters, it is required to choose an n-group including α and excluding β; This is obviously the same as choosing an $(n-1)$ group from $2n-2$ letters.

$$\therefore \text{Sum} = {}_{2n-2}C_{n-1}\,p_2 = \frac{\lfloor 2n-2}{\lfloor n-1\ \lfloor n-1}\,p_2.$$

114. (*G. Padmanabhan.*) Solve the equation $8^{x+1}+(4^{x+1})^2=12$.

Solution by R. Ramachendra Row, and others.

Put $y=8^{x+1}=2^{3(x+1)}$

The equation becomes $y^2+y=12$; $\therefore y=3$ or -4

$3(x+1)=\log 3/\log 2$, gives the only real solution.

$$\therefore\ x=-1+\frac{47712}{90900}=-\cdot 4751.$$

125. (*N. Ganapathi Subban, B. A.*) Given two sides of a triangle in position and the sum of those sides, find the locus of the centre of the nine-points circle of the triangle.

Solution by A. Radhakrishna Aiyar, B. A.

Let the sum of those sides be $2k$, and the angle between them ω.

Taking the two sides as axes, let the equation to the third side be $\frac{x}{2\alpha}+\frac{y}{2\beta}=1$, so that 2α and 2β are the lengths of the sides and $\alpha+\beta=k$.

Also as the nine-points circle passes through the middle points of the sides, it passes through the points. $(\alpha.o)$, $(o.\beta)$, $(\alpha.\beta)$ and if its centre be (x, y), we have

$$(x-\alpha)^2+(y-\beta)^2+2(x-\alpha)(y-\beta)\cos\omega$$
$$=(x-\alpha)^2+y^2+2(x-\alpha)\,y\cos\omega$$
$$=x^2+(y-\beta)^2+2x(y-\beta)\cos\omega.$$

Therefore $\beta^2-2\beta y-2\beta\cos\omega\,(x-\alpha)=0$

$\alpha^2-2\alpha x-2\alpha\cos\omega\,(y-\beta)=0.$

or $\beta-2y=2\cos\omega\,(x-\alpha)$, and $\alpha-2x=2\cos\omega\,(y-\beta)$

Hence by addition we have

$$(\alpha+\beta)-2(x+y)=2\cos\omega\,(x+y-\overline{\alpha+\beta})$$

$$\text{or } x+y=\frac{k}{2}\cdot\frac{1+2\cos\omega}{1+\cos\omega},$$

a straight line making equal intercepts on the axes.

132. (*S. Padmanabha Aiyar, B. A.*) Through a given point (h, k) tangents are drawn to the curve $y=ax^3$, a being a variable parameter.

Shew that the locus of the points of contact is $2xy+kx-3hy=0$ and that the locus of the point in which each tangent *cuts* the curve is

$$xy-4kx+3hy=0.$$

Solution by S. Venkataramanan, and others.

Let (x, y) be a point of contact, and X, Y the current co-ordinates.

Equation of tangent is $x(Y-y)=3y(X-x)$ and since it passes through (k, k), we have $x(k-y)=3y(h-x)$.

Regarding x and y as variables, the locus of the points of contact is

$$2xy+kx-3hy=0.$$

Where the tangent cuts the curve, $X=-2x$, $Y=-8y$.

Eliminating x and y between these two equations and the equation $x(Y-k)=3y(X-h)$, we get, as the locus of the point where the tangen) cuts the curve.

$$2xy+kx-3hy=0.$$

155. (*A. K. S.*) Resolve into factors :—

$(a^2b+b^2c+c^2a)^2+(a^2b+b^2c+c^2a)(ab^2+bc^2+ca^2)+(ab^2+bc^2+ca^2)^2$.

Solution by R. Ramachendra Row, B. A.

Put $L=a^2b+b^2c+c^2a$, $M=ab^2+bc^2+ca^2$; let w be an imaging cube root of 1.

Let $f(a, b, c)=L-M=-(a-b)(b-c)(c-a)$.

$f(a, b\omega, c\omega^2)=\omega L-\omega^2M=-(a-b\omega)(b\omega-c\omega^2)(c\omega^2-a)$ ... (1)

$f(a, b\omega^2, c\omega)=\omega^2L-\omega M=-(a-b\omega^2)(b\omega^2-c\omega)c\omega-a)$ ... (2)

$\therefore (\omega L-\omega^2M)(\omega^2L-\omega M)=(a-b\omega)(a-b\omega^2)(b\omega-c\omega^2)(b\omega^2-c\omega$
$(c\omega^2-a)(c\omega-a)$

or, $L^2+LM+M^2=(a^2+ab+b^2)(b^2+bc+c^2)(c^2+ac+a^2)$

[*Note.*—If $a=b\omega$ or $a=b\omega^2$ the given expression vanishes. Hence a^2+ab+b^2 is a factor of the expression. Similarly b^2+bc+c^2 and a^2+ac+c^2 are also factors.]

160. The curve for which the ordinate and abscissa of the centre of gravity of the area included between the ordinates $x=a$ and $x=x$ are in the same ratio as the bounding ordinate y and the abscissa x is given by the equation $a^3/x^3-b^3/y^3=1$. —[*Mathematical Tripos.*]

Solution by V. Ramaswami Aiyar, M. A., and R. Ramachendra Row, B. A.

The property of the curve is

$$\frac{\bar{x}}{\bar{y}}=\frac{x}{y}; \qquad \text{... (1)}$$

$$\text{Let } u=\bar{x}\int ydx.x\,;\quad v=\bar{y}\int ydx.\frac{y}{2}$$

$$\text{so that } \frac{du}{dx}=xy\,;\ \frac{dv}{dx}=\frac{y^2}{2}. \qquad \text{... (2)}$$

From (1) $\qquad y\cdot u-x\cdot v=0 \qquad$ ... (3)

Hence by successive differentiations and using (2), we have

$$\frac{dy}{dx}.u-v+\frac{xy^2}{2}=0 \qquad \ldots \quad (4)$$

$$\frac{d^2y}{dx^2}.u+2xy.\frac{dy}{dx}=0 \qquad \ldots \quad (5)$$

Eliminating the integrals u and v from (3), (4) and (5) we get the differential equation of the curve required ; namely

$$\frac{d^2y}{dx^2}=\frac{4}{y}\left(\frac{dy}{dx}\right)^2-\frac{4}{x}\cdot\frac{dy}{dx} \qquad \ldots \quad (6)$$

To solve (6) put $z=y^{-3}$; and we get

$$\frac{d^2z}{dx^2}+\frac{4}{x}\cdot\frac{dz}{dx}=0 \qquad \ldots \quad (7)$$

Hence $x^4\dfrac{dz}{dx}=C$; and finally $\dfrac{1}{y^3}=\dfrac{C'}{x^3}+C''$, which is the same as $a^3/x^3-b^3/y^3=1$; and it may be verified that this curve has the property in question.

Questions for Solution.

161. If $u=1+A_1x+A_2.\frac{x^2}{|\underline{2}}+A_3.\frac{x^3}{|\underline{3}}+\ldots\ldots$ where the A.'s are connected by the relation $A_m=m.A_{m-1}-\frac{1}{2}(m-1)(m-2).A_{m-3}$; show that $\log\{u(1-x)^{\frac{1}{2}}\}=\frac{1}{2}x+\frac{1}{4}x^2$.

162. (*J. Bhaskara Ramamurti.*) Show how to construct a triangle, given the lengths of its medians.

163. (*G. Rama Aiyengar, B.A.*) Divide a given triangle by two straight lines into three parts which when properly arranged shall form a parallelogram whose angles are of given magnitude.

164. (*V. R. Thyagarajaiyar, M.A.*) Given the equations

$$x^2+2yz=a^2\ ;\ y^2+2zx=b^2\ ;\ z^2+2xy=c^2\ ;$$

prove that the value of $x^2+y^2+z^2$ is a root of the equation in λ,

$$3\lambda^2-2\lambda(a^2+b^2+c^2)+(a+b+c)(b+c-a)(c+a-b)(a+b-c)=0.$$

165. Eliminate x, y, z, from the following equations :—

$$\frac{x}{y}+\frac{y}{z}+\frac{z}{x}=a\ ;\quad \frac{y}{x}+\frac{x}{z}+\frac{z}{y}=b\ ;$$

$$x+y+z=c\ ;\quad c(x^2+y^2+z^2)=xyz.$$

166. (*S. Padmanabha Aiyar, B.A.*) An elliptic arc bounded by the major axis, of length $2a$, is illuminated by a bright point at the focus S. Show that the illumination is a *minimum* at a point P such that $SP=\frac{5}{3}a$, if the eccentricity (e) be *greater than* $\frac{2}{3}$. Also determine the points of maximum and minimum illumination when $e\angle\frac{2}{3}$.

NOTICE TO CORRESPONDENTS.

[*Mathematical contributors are requested* (1) *to write each Question and each Solution on a separate paper* (*otherwise when used for printing, the Editor has the trouble of entirely re-writing such articles*), (2) *to make their solutions as short as possible and* (3) *to write on one side only and not on both sides of the paper.*—EDITOR.]

NOTIFICATIONS.

BENGAL.

THE TRAINING OF TEACHERS FOR ENGLISH SECONDARY SCHOOLS.

Hitherto the course of instruction in Normal or Training Schools in Bengal has been vernacular only; the object of these institutions having been to turn out a supply of teachers for middle schools, in all of which, whether middle English or middle vernacular, the system of instruction is on a vernacular basis and all subjects are taught through the vernacular. A new departure in this respect has now been sanctioned. Under the orders of Government, classes for the training of English teachers for high and middle English schools will be opened in June next, after the close of the summer vacation, in the Training Schools at Calcutta, Hooghly, Dacca, Patna, and Cuttack; and teachers' certificates of three grades will be issued to successful candidates after examination in the principles and practice of teaching. In the Educational Estimates for 1896-97 provision has been made for the necessary outlay, including the appointment of a qualified teacher on Rs. 100 a month in each of the five schools mentioned.

2. The certificates to be issued to candidates will be of three grades:—

(*a*) Candidates for the third or lowest grade certificate will be required to have passed the Entrance Examination, and will be admitted to a course of one year's duration in the Training School which they may select. During the course they will be instructed in the theory and practice of teaching, the necessary practice being given in the middle English school attached to the Training School. The examination for the certificate, theoretical and practical, will be held at the close of the year.

(*b*) Candidates for the second-grade teachership should have passed the First Arts Examination, and will be required to go through a course of study for one year, and to pass an examination, corresponding to those prescribed for the third-grade certificate.

(*c*) Candidates for the first-grade certificate should have passed the B.A. Examination. They will not for the present be required to go through a preliminary course of study at the Training School; but the certificate will be issued after an examination in the principles and practice of teaching.

3. In default of qualified candidates who have passed the Entrance, First Arts,

or B.A. Examination, candidates may be accepted who have failed in not more than one subject at either examination, provided they have passed in English.

4. The subjects to be included in the course or standard of examination will be :—general principles and methods of the art of teaching, with applications to particular subjects ; moral and physical training ; the maintenance of school discipline ; and the details of school management.

5. Thirty stipends of Rs. 6 a month will be awarded by the Circle Inspector, on the recommendation of the Head Master, to qualified candidates for the second and third-grade teachership classes at the Calcutta, Hooghly, and Dacca Training Schools, 15 stipends being allowed to each class. At the Patna and Cuttack Training Schools there will be 10 scholarships of the like value for each class, or 20 in in all. Some of the stipends will be reserved for Muhammadans, if there are qualified candidates of that creed.

6. It has been stated above that candidates for second and third-grade certificates will be required to pass through the Training Schools course. Exceptions will, however, be made in favour of persons who have served with credit as teachers for three years or upwards, who will be allowed to compete, without passing through a Training School, for the grade of certificate corresponding to their academical standing. A teacher who has held a certificate of a certain grade with credit for five years will also be allowed to compete for the next higher grade of certificate, if his capacity as a teacher is certified as satisfactory by the Inspector of Schools.

7. Candidates for admission to the new certificate classes should apply to the Head Master of the school which they select, not later than the 15th May. The first examination for certificates will be held in April 1897. Details of the course and standards of examination will be published hereafter.

8. If, as is hoped, the necessary accommodation can be found for them, students of these classes will be required, like other students of the Training School, to reside on the premises under the ordinary rules as to discipline.

9. If all the stipends are taken up and all the stipend-holders pass the examinations, 130 teachers' certificates will be issued annually, in addition to those which may be issued to candidates of various classes who do not read in the Training Schools or who do not hold stipends therein. The orders of Government are, that in the case of all new appointments, whether in schools under public management, or in aided or unaided schools, preference shall in future be given to the holders of teachership certificates. Managers of aided schools who neglect to comply with this rule will render themselves liable to the loss of their grant ; and similarly, managers of unaided schools to the deprivation of the right of competing for Government scholarships.

A. CROFT,
Director of Public Instruction, Bengal.

CALCUTTA,
7th April 1896.

BOMBAY.

We publish the following at the request of the Director of Public Instruction, Bombay.

Extract from letter No. Ac.-4815, dated the 25th May 1896, from the Accountant General, Bombay.

"I have the honor to return the accompanying Indent in Triplicate for stores

required for the use of Byramji Jijibhoy High Schools, Thana, forwarded to this office for submission to Government with your letter No. 923, dated 15th May 1896, and to request that you will by a footnote in it give an explanatory Memorandum or Statement as required by paragraph 11 of the Resolution of the Government of India in the Department of Finance and Commerce, No. 185, dated 10th January 1883, embodied in Bombay Government. Financial Department, Resolution No. 595 dated 13th February 1883.

2. "I take this opportunity to request that you will be so good as to give this explanatory statement in all future Indents on the Secretary of State that you submit to Government, and instruct all Indenting officers under you to state in the Indents that they have by enquiry satisfied themselves that the articles indented for cannot be obtained in India of Indian manufacture of a quality suitable for their requirements, and at prices not higher than the cost of laying down the imported articles."

List of appointments in the Educational Department for the month of May 1896.

21st May 1896.—Mr. K. B. Bendigiri, B.A., to be substantive 2nd Assistant, Dharwar High School, subject to the lien of Mr. Anikhindi; Mr. A. R. Kale, B.A., to be substantive 2nd Assistant, Belgaon High School, subject to the lien of Mr. Bendigiri.

The following appointments are made in the office of the Deputy Educational Inspector, Canara:—Mr. V. M. Chandavar, 2nd Clerk, to be 1st Clerk; Mr. B. B. Mardur, Acting Head Master, Local Board, 2nd Grade, Anglo-Vernacular School, Hungund, to be 2nd Clerk.

MADRAS.

TEACHERS' CERTIFICATE EXAMINATION.

It is hereby notified that the Practical Test for Teachers' Certificates during 1896-97 will be held at the following centres:—

Berhampur.
Chicacole.
Parlakimedi.
Russellkonda.
Anakapalle.
Bimlipatam.
Bobbili.
Gunupur.
Vizagapatam.
Vizianagram.
Yellamanchili.
Amalapuram.
Cocanada.
Ellore.
Narsapur.
Rajahmundry.
Bapatla.

Bezwada.
Guntur.
Masulipatam.
Phirangipuram.
Kurnool.
Adoni.
Bellary.
Anantapur.
Cuddapah.
Madanapalle.
Nellore.
Ongole.
Madras.
Chingleput.
Saidapet.
Chittoor.
Vellore.

Cuddalore.
Tanjore.
Tranquebar.
Trichinopoly.
Madura.
Nazareth.
Palamcottah.
Tuticorin.
Coimbatore.
Ootacamund.
Salem.
Calicut.
Cannanore.
Cochin.
Palghat.
Tellicherry.
Mangalore.

It is hereby notified that the Practical Test Examination for Teachers' Certificates will be held in the Southern Circle at the following centres on dates mentioned against each :—

Names of Centres.	Dates of Examination.	
	First.	Second.
Tranquebar ...	22nd to 24th April 1896 ...	24th to 26th October 1896.
Tanjore	27th to 30th April 1896 ...	28th to 31st October 1896.
Cuddalore ...	13th and 14th May 1896 ...	17th to 19th November 1896.
Chittoor	13th and 14th July 1896 ...	3rd and 4th December 1896.
Vellore	9th to 11th July 1896 ...	26th to 28th November 1896.
Madura	22nd to 27th August 1896 ...	10th to 15th March 1897.
Palamcottah ...	19th to 25th September 1896...	18th to 22nd February 1897.
Tuticorin... ...	16th and 17th September 1896.	1st and 2nd March 1897.

The following appointments are made to the Law College and are to have effect for the second term of 1896 only :—M.R.Ry. Collattoor Ramachandra Rao Sahib, B.L., Senior Professor; Mr. John George Smith. B.A., Barrister-at-Law, Junior Professor; M.R.Ry. Kalle Narayana Rao, B.A., B.L. First Assistant Professor; M.R.Ry. Palamarneri Sundaram Aiyar Sivaswami Aiyar, B.A., B.L., Second Assistant Professor; M.R.Ry. Tiruchendurai Vaidyanatha Aiyar Seshagiri Aiyar, B.A., B.L., Third Assistant Professor; M.R.Ry. Korumathil Pokkavil Govinda Menon, B.A., B.L., Fourth Assistant Professor; M.R.Ry. Morichetti Venkataramayya Chetti, B.A., B.L., Fifth Assistant Professor; M.R.Ry. Vembakam Comandur Desika Chari, B.A., B.L., Sixth Assistant Professor.

THOMASON COLLEGE ROORKEE.

In paragraph 19 of the Circular, Engineer and Telegraph Classes, dated 1st January 1896, it is stated that the Civil Engineering Course extends over two years. The Government having determined that this course shall be extended to three years when the administrative arrangements for such extension are completed, notice is hereby given to intending candidates that the Government retains discretion to extend the course to three years without further notice.

VIDYASAGARA SCHOLARSHIPS.

1. Vidyâsâgara Scholarships of Rupees 5 each per mensem tenable for two years, shall be distributed in the following manner :—

(*a*) Twenty in Bengal.

(*b*) Fifteen in N.-W. P. and Oudh.

(*c*) Twelve in the Punjab.

(*d*) Fifteen in Madras.

(*e*) Fifteen in Bombay and four in Sind.

(*f*) Five in the Central Provinces.

(*g*) Four in Central India.

(*h*) Five in Assam and Burma.

These scholarships are tenable along with Government or any other scholarships, on the conditions of good conduct and satisfactory progress.

2. A public competitive examination of candidates who intend to compete for the scholarships, shall be held throughout India on the second Wednesday in September of each year. A High School recognised by any of the Indian Universities, shall constitute a centre of examination.

3. Any person, male or female, without any distinction of caste, creed or color, belonging to a High School, may be admitted to the examination. Applications and fees accompanied by certificates of good conduct from the Heads of Schools, must reach the Manager at least six weeks before the commencement of the examination.

4. No candidate shall be allowed to present himself for examination unless his name has been on the rolls of his school during six out of the twelve months preceding the examination.

5. The examination shall be conducted by means of question papers, the same questions being set in every place where the examination is held.

6. There shall be set two papers--the first paper to contain questions of a general nature, *i.e.*, explanation of passages in English of ordinary difficulty, parsing, analysis, direct and indirect narration, the correcting of sentences in which common blunders occur, and a simple essay, and also questions on grammar and idiom; the second paper to contain English passages for translation into the vernacular of the candidate, and also the subject for an essay in the vernacular, connected with the History of India, with special reference to the Hindu period from the Aryan Invasion to the Mahomedan Invasion. Candidates other than natives of India whose vernacular is English, may substitute for an Indian Vernacular any of the following:—Latin, German, or French.

7. The following value shall be attached to the subjects of examination: English 150, Vernacular 50, History 100. The merit of the candidates examined shall be estimated by marks, and the number opposite to each subject denotes the greatest number of marks that can be obtained in respect of it. The minimum number of marks required to pass the examination shall be *thirty-three* per cent in English, and *twenty-five* per cent in each of the other subjects. Marks shall be deducted for *bad spelling* and *bad writing*.

8. The marks obtained by each candidate who passes will be added up, and the names of those who obtained the highest marks will be set forth in order of merit, and such candidates shall be selected for the scholarships.

9. Every candidate at the time of applying shall pay a fee of two rupees. The balance after payment of reasonable expenses (stationery, &c.,) will go as remuneration to the examiners. The fee must be paid in Cash, or by a Post Office Order. Postage or Court fee Stamps will not be accepted. A candidate who fails to pass or to present himself for the examination, shall not be entitled to claim a refund of the fee.

10. Six weeks after the commencement of the examination, a list of the successful candidates shall be published.